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Photo: "Candling" a mallard egg to determine the age of the embryo, its stage of incubation, for duck nesting studies.

In 1986, Wisconsin passed the strongest acid rain laws in the United States, reducing previous sulfur dioxide and nitrogen oxide levels (the primary pollutants forming acid rain) by 50%. The state's largest coal-burned utilities and other industries cut sulfur dioxide emissions by 46% well ahead of deadlines specified by law. Wisconsin's pioneering efforts to protect groundwater helped prompt passage of a 1986 amendment to the federal Safe Drinking Water Act improving drinking water quality. Well codes were being established in many counties, and education requirements were mandated for well drillers and pump installers. The continuing nonpoint pollution vigil and lake monitoring efforts added further water quality improvement to most lakes, rivers, and streams. In 1988, new regulations were established in Wisconsin to reduce airborne carcinogens and acutely toxic compounds from new and existing sources of pollution. The following year, regulations were passed to control water pollutants from industrial and municipal sewage treatment plants. In 1987 and 1988, Wisconsin's environmental program was ranked first in the nation by a Washington, D.C. environmental monitoring organization. Expanded funding was established for the cleanup of abandoned landfills in the state. The inventory identified 3,962 sites needing treatment. A 1985 State Supreme Court decision interpreting hazardous waste spill laws more broadly led the Wisconsin DNR to launch a 1988 program to find, locate, and cleanup leakage from underground tanks used to store gasoline and other liquids. Because it was discovered that pollution from neighboring states was preventing Southeast Wisconsin from complying with the Clean Air Act, a 1989 agreement by Wisconsin, Indiana, Illinois, Michigan, and the U.S. Environmental Protection Agency called for a \$16 million study of air quality over the Lake Michigan basin to quantify each state's contribution to the regional ozone problem. Southeast Wisconsin car owners began submitting to annual truck and car emissions tests with under-the-tail-pipe exhaust inspections to help curb ozone problems. New industrial standards were also established to address the problem. Wisconsin joined neighboring states and Canada to begin the cleanup of the Great Lakes. Remedial action plans were completed to address toxic

sediment, contaminated problems. Almost 150 towns, cities, villages, and counties adopted ordinances by 1990. life, the Conservation was authorized under Act of 1982. The 500,000 acres of wetlands in the early 1990s and the Pheasants Forever more than 450 million ing more than 170,000 ducing about 13.5 mil. The North American (NAC) was passed nificantly improved for wildlife. State University more than were protected and Wisconsin and more

than 23 million acres were protected in the United States, Mexico, and Canada. In 1990, the Wetlands Reserve Program was authorized as part of an amended farm bill. Wisconsin created the Lower Wisconsin State Riverway and the Charles Nelson Stewardship Fund for land acquisition. The State Riverway, described on page XXX, created a state land acquisition program, containing 7,000 acres (22,600 acres already state-owned) and Lower Wisconsin State Riverway board charged with administering under aesthetic protection regulations for protecting land values. The Charles Nelson Stewardship Program, described on page XXX, replaced the old ORAP program and provided \$60 million for land acquisition over the next ten years. During this period, a larger number of outdoor writers became

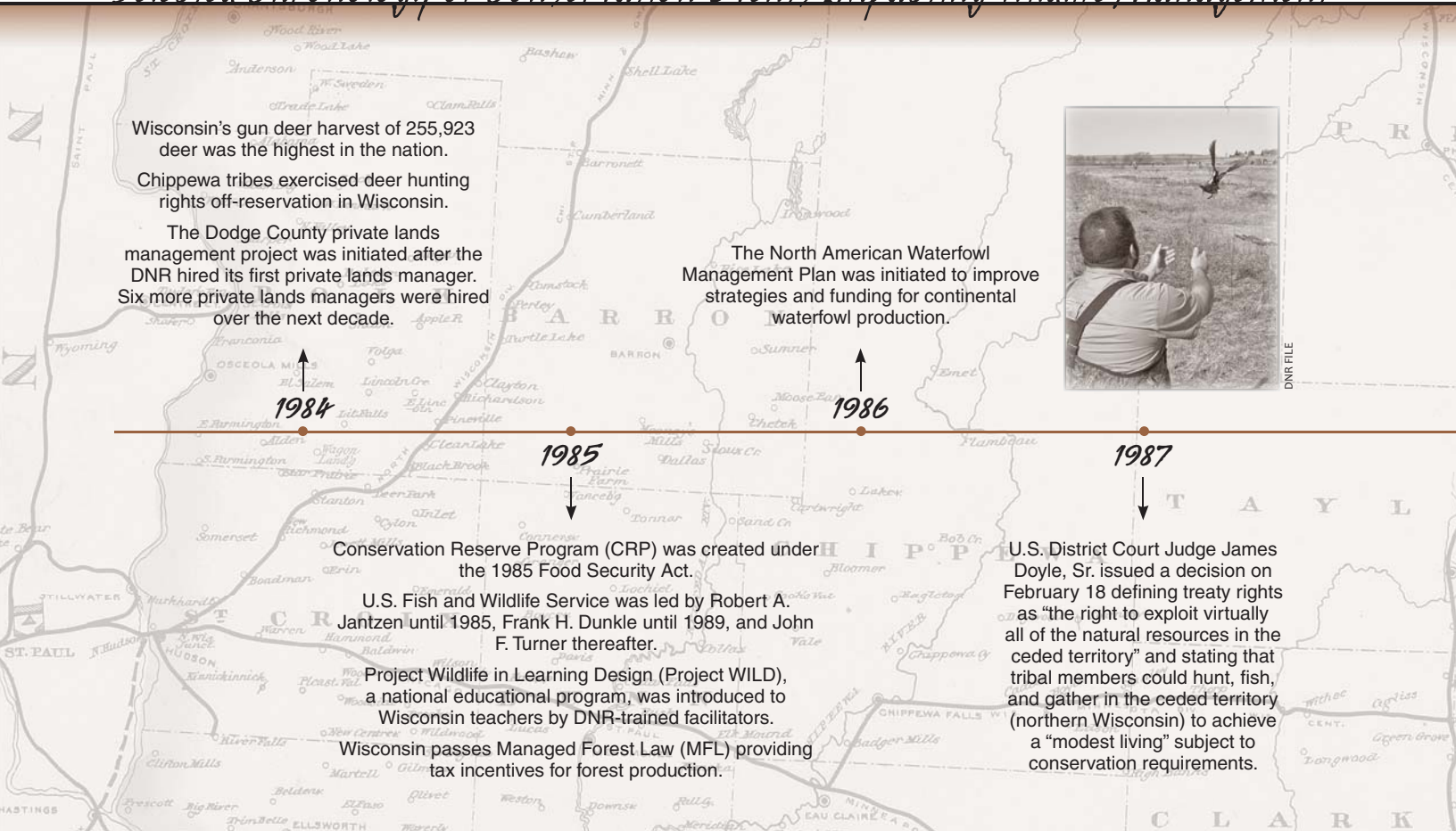
comprehensive across the environment and conservation issues. Writers including Vapo and the author of the book "The Greening of Wisconsin" by Gary Emswold and Verdu Kells joined newspaper stalwarts like Jay Reed, Steve Hopkins, and Pat Johnson (who retired from the Milwaukee Journal staff in 1986). DNR Progress: The department enjoyed reasonable budget and program progress throughout this period. The total 1992-1993 budget was about \$180 million for 2,556 permanent positions. The 1991-92 biennial budget exceeded \$170 million with 2,987 positions authorized. The public seemed satisfied with the agency, but The Greening often complained about heavy-handed environmental law enforcement and legislative Audit Bureau's routine procedure of conducting frequent audits of the DNR continued through the 1980s. Specific audits were completed on the manner that the agency used segregated funds with particular attention to how much federal and state funding was used to support the "administration" category. Comparison audits by the U.S. Fish and Wildlife Service and the Wisconsin State and federal audits during this period found the agency to be compliant. Natural Resources Board The same Wisconsin DNR organization was still led by a seven-person Natural Resources Board. They met for two days each month to address agency policy issues, approve public hearings for rules, adopt final rules, and listen to various informational presentations by the DNR staff. A public comment period was included in the agenda to enable people to address the board on any pertinent topic. For the uninitiated, the board agenda was very complex and could be intimidating. The stack of "green sheets" (written summaries of each agenda item) were often several inches thick requiring tedious reading to advance homework including numerous discussions with DNR staffers to ensure they could make knowledgeable

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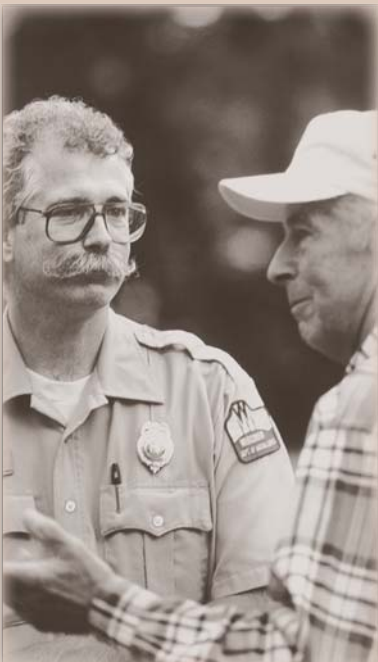
Chapter 7

Holistic Management, 1984-1992

Selected Chronology of Conservation Events Impacting Wildlife Management

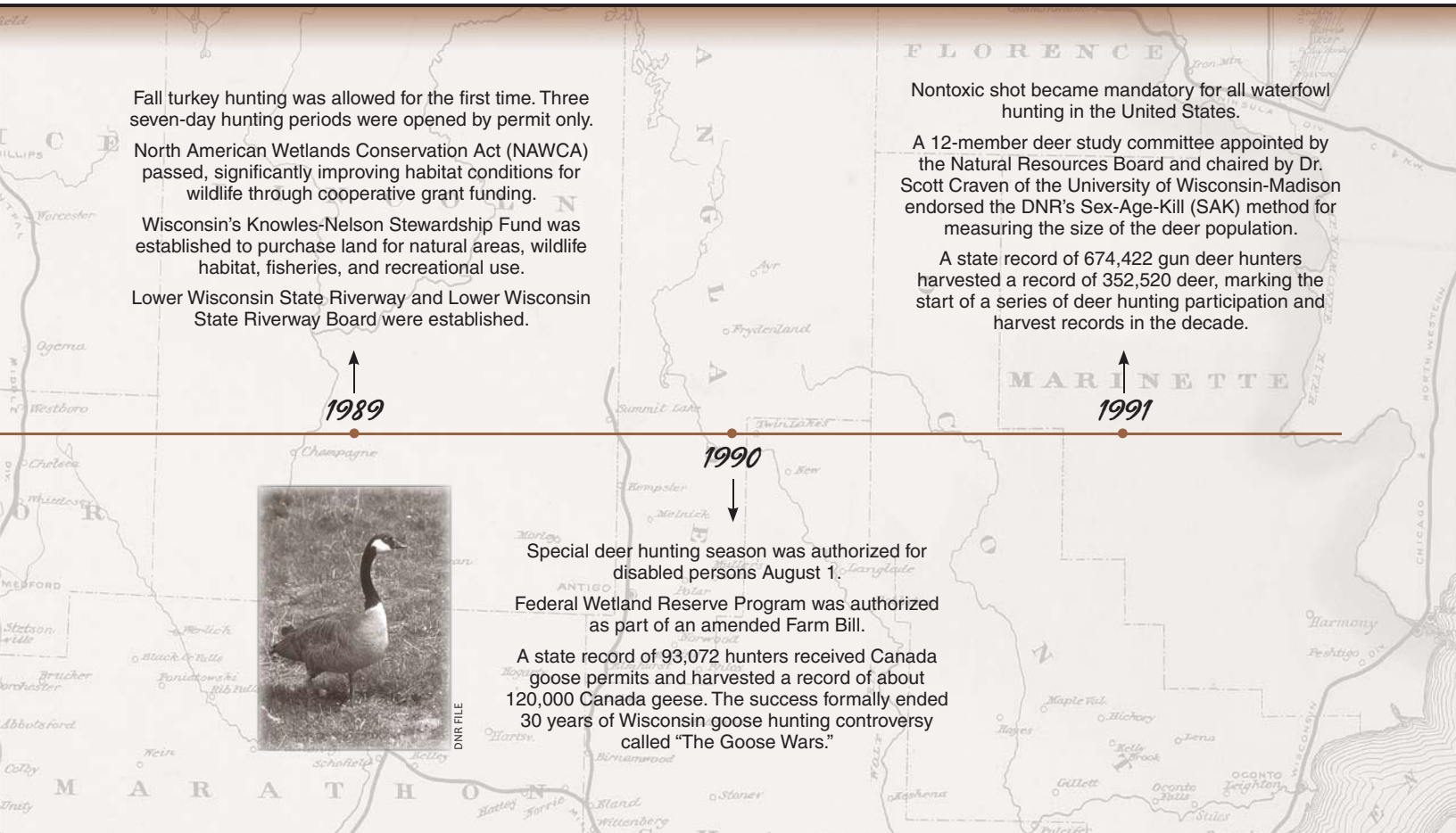


Historical Overview



DNR FILE

- The year 1984 was declared the year of the yuppie, or young urban professional. The "Cosby Show" along with "Family Ties" brought a new level of quality to television. The economy began to improve in Wisconsin after a two-year low.
- On June 8, an F5 tornado destroyed Barneveld, Wisconsin, killing nine. President Ronald Reagan was reelected in November by carrying 49 states. It was the greatest Republican landslide victory in history.
- The cost of mailing a first-class letter rose to 22 cents in 1985, and the price of oil dropped to \$15 a barrel in 1986. That same year, Exxon finally dropped plans to develop a copper mine near Crandon, Wisconsin. Tommy Thompson defeated the incumbent Tony Earl for governor in November and was reelected four years later. President Reagan submitted the first trillion-dollar federal budget in 1987.
- The summer of 1988 was the driest on record since the 1930s. George Bush and Dan Quayle were elected as president and vice president later that year.
- The Berlin Wall came down in 1989. The collapse of the Soviet Union started about the same time.
- Unleaded gasoline sold for an average of \$1.075 per gallon in 1990. The Earth Day celebration on April 22, 1990, was proclaimed the largest demonstration in history. The U.S. population had exceeded 248 million by 1990, and Wisconsin's population had reached 4,891,769.



- The United States and its allies attacked Iraq and liberated Kuwait in 1991, and the U.S.S.R was dissolved on December 31, 1991.
- George Bush and Boris Yeltsin announced a new era of "friendship and partnership" as seven decades of cold war ended between the United States and Russia on February 1, 1992. Bill Clinton was elected the 42nd president of the United States that November.



J KUBSI/AK

The Gamekeepers

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Wisconsin's pioneering efforts to protect groundwater helped prompt passage of a 1986 amendment to the federal Safe Drinking Water Act improving drinking water quality. Well codes were being established in many counties, and education requirements were mandated for well drillers and pump installers. The continuing nonpoint pollution vigil and lake monitoring efforts added further water quality improvement to most lakes, rivers, and streams.

In 1988, new regulations were established in Wisconsin to reduce airborne carcinogens and acutely toxic compounds from new and existing sources of pollution. The following year, regulations were passed to control water pollutants from industrial and municipal sewage treatment plants. In 1987 and 1988, Wisconsin's environmental program was ranked first in the nation by a Washington, DC, environmental monitoring organization.

Expanded funding was established for the cleanup of abandoned landfills in the state. The inventory identified 3,962 sites needing treatment. A 1985 State Supreme Court decision interpreting hazardous waste spill laws more broadly led the Wisconsin DNR to launch a 1988 program to find, locate, and cleanup leakage from underground tanks used to store gasoline and other liquids.

Because it was discovered that pollution from neighboring states was preventing southeast Wisconsin from complying with the Clean Air Act, a 1989 agreement by Wisconsin, Indiana, Illinois, Michigan, and the U.S. Environmental Protection Agency called for a \$10 million study of air quality over the Lake Michigan basin to quantify each state's contribution to the regional ozone problem. Southeast Wisconsin car owners began submitting to annual truck and car emissions tests with under-the-tail-pipe exhaust inspections to help curb ozone problems. New industrial standards were also established to address the problem.

Wisconsin joined neighboring states and Canada to begin the cleanup of the Great Lakes. Remedial action plans were completed to address toxic sediment, contaminated sport fish, and other problems. Almost 150 municipalities adopted floodplain and shoreline zoning ordinances during the 1980s. In total, 445 cities, villages, and counties adopted ordinances by 1990.

Importantly for wildlife, the Conservation Reserve Program (CRP) was authorized under the federal Food Security Act of 1985. The CRP provided more than 500,000 acres of wildlife habitat in Wisconsin by the early 1990s and was credited nationally by the Pheasants Forever organization for saving more than 450 million tons of topsoil, protecting more than 170,000 miles of streams, and producing about 13.5 million pheasants annually. The North American Wetlands Conservation Act (NAWCA) was passed into law in 1989 and significantly improved wetland habitat conditions for wildlife. Matched with funds from Ducks Unlimited, more than 72,000 acres of wetlands were protected and improved for wildlife in Wisconsin, and more than 23 million acres were protected and improved in the United States, Mexico, and Canada. In 1990, the Wetlands Reserve Program was authorized as part of an amended Farm Bill.

Also in 1989, Wisconsin created the Lower Wisconsin State Riverway and the Knowles-Nelson Stewardship Fund for land acquisition. The State Riverway, described on page 211, created a state land acquisition project containing 77,300 acres (22,600 acres already state owned) and a Lower Wisconsin State Riverway Board charged with administering unique aesthetic protection regulations for protecting land visible from the river. The Knowles-Nelson Stewardship Program, also described on page 211, replaced the old ORAP program and provided \$250 million for land acquisition over the next ten years.



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During this period, a larger number of outdoor writers became active in Wisconsin, resulting in news articles that were more comprehensive about the environment and conservation issues. Writers including Dave Otto, Tim Eisele, Dave Carlson, Pat Durkin, Ron Seely, Gary Engberg, and Jerry Davis joined newspaper stalwarts like Jay Reed, Steve Hopkins, and Don Johnson (who retired from the *Milwaukee Sentinel* staff in 1984).

DNR Progress

The department enjoyed reasonable funding and program progress throughout this period. The total 1983–85 budget was about \$380 million for 2,556 permanent positions. The 1991–93 biennial budgets exceeded \$770 million, with 2,987 positions authorized. The public seemed satisfied with the agency, but the Legislature often complained about heavy-handed environmental law enforcement.

The Legislative Audit Bureau's routine procedure of conducting frequent audits of the DNR continued through the 1980s. Specific audits were completed on the manner that the agency used segregated funds with particular attention given to how much federal Pittman-Robertson funding was used to support the "administration" category. Companion audits by the U.S. Fish and Wildlife Service were also conducted. Both state and federal audits during this period found the agency to be compliant.

Natural Resources Board

The basic Wisconsin DNR organization was still led by a seven-person Natural Resources Board. They met for two days each month to address agency policy issues, approve public hearings for rules, adopt final rules, and listen to various informational presentations by the DNR staff. A public comment period was included on all agendas to enable people to address the board on any pertinent topic.

For the uninitiated, the board agenda was very complex and could be intimidating. The stack of "green sheets" (written summaries of each agenda item) were often several inches thick requiring board members to do advance homework including numerous discussions with DNR staffers to ensure they could make knowledgeable decisions. Board members were divided into various committees based upon interest and expertise. The first day of the agenda was devoted to those committees to develop recommendations for the "committee of the whole."

The typical first day started off with an agenda review and a discussion of general topics before adjourning to conduct the special committee sessions. The DNR provided program leaders (division administrators and bureau directors) to be available to answer questions or receive follow-up assignments for topics needing additional study. Other staff attended if their expertise was also needed. For example, a regulations author usually attended the meeting to explain the text of a rule and its rationale.



DNR FILE

Wilson and Keener Pass

On August 28, 1991, a memorial service was held in Madison for Fred Wilson who died at the age of 103. He was one of the original 12 forest rangers hired by the Wisconsin Conservation Commission in 1911. Mr. Wilson had been in charge of the state's reforestation project at Star Lake and had supervised its cutting and thinning operations well into his retirement years.

Former Bureau of Wildlife Management director John M. Keener died October 15, 1991, at 70 years of age. Keener was credited with a large number of innovations that elevated the Wisconsin wildlife management program to one of the finest in the nation. Species management techniques for deer, waterfowl, and nongame wildlife, comprehensive planning, wildlife health strategies, and a formal wildlife policy were a few of those innovations. Keener was awarded numerous plaques acknowledging his special contributions to wildlife management by the National Wildlife Federation, Wisconsin Wildlife Federation, Society of Tympanuchus Cupido Pinnatus, Wisconsin Conservation Congress, and Ruffed Grouse Society, and he received the prestigious Silver Eagle Award from the U.S. Fish and Wildlife Service.

The Natural Resource Board meets two days each month to conduct business.

The Gamekeepers

On the second day, the committee of the whole convened to hear briefings from the DNR staff, obtain each committee's recommendations, and take the appropriate action on each topic. The routine always included a voting procedure to accept or reject DNR land purchases, rules for public hearing, and final rules that had already been to public hearing. Matters needing further review or new topics initiated by board members were assigned to the DNR secretary for follow-up.

Prior to developing a final position on any board decision item, the board chair conducted a citizen participation session. This part of the formal agenda allowed any individual who had filed "speaking interest" to address the board. Five-minute time limits were usually imposed on each speaker, but the chair often would allow more time if necessary. This part of the agenda kept the board tuned to public opinion and was considered essential for good decision making.

DNR Administration

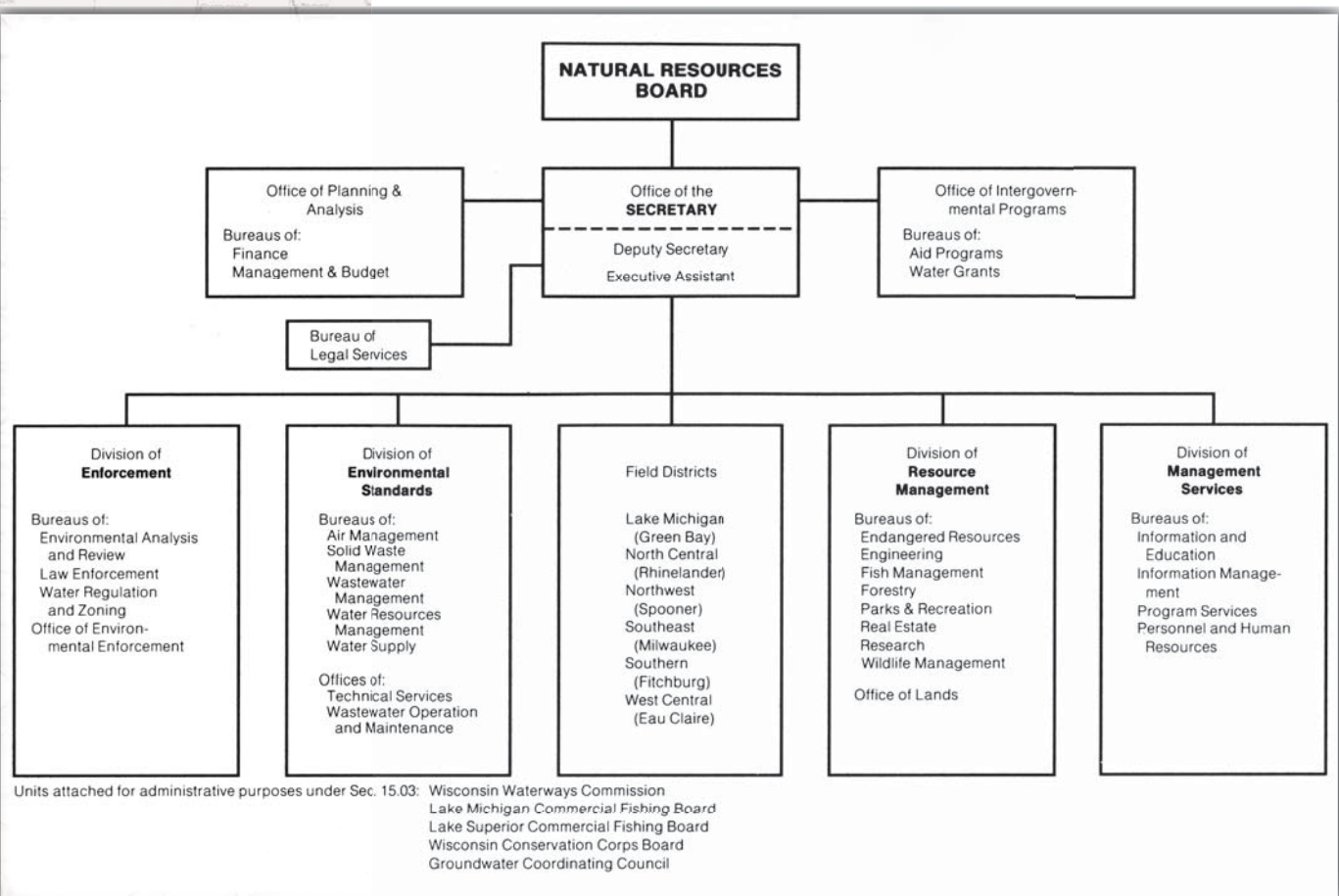
The agency was still led by the board-appointed secretary, C. D. "Buzz" Besadny. Linda Bochert served as his executive assistant, and James Kurtz served as director of the Bureau of Legal Services for a growing staff of attorneys (13 in 1984 to 19 by 1992). Four divisions directed core natural resource programs: Environmental Standards, Enforcement, Management Services, and Resource Management. The latter was led by James Huntoon and contained the more traditional conservation programs of Fish Management, Wildlife Management, Endangered Resources, Forestry, Parks and Recreation, Research, Real Estate, and Engineering and the Office of Lands.

The six field districts and respective headquarters were: (1) Southern at Fitchburg, (2) Southeast at Milwaukee, (3) Lake Michigan at Green Bay, (4) West Central at Eau Claire, (5) North Central at Rhinelander, and (6) Northwest at Spooner. One district director was in charge of all field programs, and an assistant director supervised all environmental protection programs.



Buzz Besadny rose through the ranks within the DNR and had a good public image.

Wisconsin Department of Natural Resources Organization Chart, 1985-1986.



Seventeen administrative areas were located within the six districts, each led by an area supervisor. In 1985, the supervisor title changed to “area director.” The position was eliminated entirely in 1988, and the line authority over all field programs was vested in one person again (the district director).

Law Enforcement

Native American Indian treaty enforcement started in 1984 and added a substantial work burden to conservation wardens. Northern wardens were forced to defer or drop normal work activities to accommodate increased patrolling in the ceded territory (northern Wisconsin) and to be present at various boat landings to maintain order during public protests as the Chippewa bands exercised their spearfishing rights. Other conservation wardens throughout the state received special assignments in the ceded territory, leaving gaps in statewide enforcement coverage and depleting strained budgets.

Mandatory hunter education was established January 1, 1985, for those born on or after January 1, 1983, generating still more work for conservation wardens as well as volunteer hunter education instructors. Expanded conservation warden authority in the area of environmental enforcement saw a dramatic increase in penalties applied by the courts. Annual fines and forfeitures totaled from \$500,000 to \$1.2 million in the early 1980s but exceeded \$2 million by 1989. The number of conservation wardens grew to 181 by 1992.

In 1985, Robert Jackson and Bob Norton of the University of Wisconsin-La Crosse completed the field phase of a very unique sociological study involving duck and deer hunters that had been undertaken through the Hunter Education program in 1972. The project eventually identified five distinct developmental stages of hunters and revealed ethical behavior traits never before documented in Wisconsin. The five stages are briefly summarized as follows (the reader is encouraged to read Bob Norton's book *The Hunter: Developmental Stages and Ethics* for the study details):

- Shooter stage – Seeing game and getting a shot off valued highest
- Limiting-out stage – Success measured mostly by full or nearly full bag limits
- Trophy stage – Hunting skills focused generally on the biggest animal
- Method stage – Equipment and hunting techniques become more important than getting game
- Sportsman stage – A more esoteric stage whereby the hunter so enjoys the entire hunting experience that getting game or proving his or her skill to others is unimportant

Fisheries

Wisconsin continued to lead the nation in the sale of nonresident fishing licenses. Annual sales exceeded one million in the 1980s. Several new strains of fish were introduced to Wisconsin waters:

- Three strains of rainbow trout were stocked in Lake Michigan to provide a year-round steelhead fishery.
- A strain of brown trout was experimentally introduced in Green Bay and northern Lake Michigan.
- A strain of Great Lakes muskellunge obtained from Michigan was introduced to the bay of Green Bay.



State Parks

The State Parks program continued to expand, adding 10 more state trails to the system: Glacial Drumlin, 47 miles (1984); Great River, 22 miles (1986); Wild Goose, 30 miles (1986); 400 Trail, 22 miles (1988); Hillsboro, 4.3 miles (1988); Gandy Dancer, 66 miles (1989); Chippewa River, 22 miles (1990); Old Abe, 20 miles (1990); Saunders, 8 miles (1991); and Wiouwash, 65 miles (1992). The first “urban park” was established in 1986 when Governor Nelson State Park was created adjoining Lake Mendota near Madison.



Monitoring trout.



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Endangered Resources

The Legislature passed an income tax check-off law in 1983 that allowed residents to make voluntary contributions to the Endangered Resources Fund. This segregated fund became the primary source of revenue for the program and generated more than \$3 million by 1990. The protection of state endangered and threatened species advanced and included the following:

- Establishing a Natural Resources Heritage Inventory (computer database) and a Match Grant Program in 1985
- Removing the double-crested cormorant from the endangered and threatened list in 1986
- Reintroducing peregrine falcons and trumpeter swans in 1987
- Reintroducing American martens in the Chequamegon National Forest in 1987
- Approval of a timber wolf recovery program in 1989
- Upgrading the bald eagle and osprey status from endangered to threatened that same year

Forestry

Forestry accomplishments during the 1980s were also impressive. State nursery tree production increased from 14 million to more than 25 million. The *Managed Forest law* was passed in 1985 providing tax reduction incentives for managing land for forest production. Wisconsin signed the Great Lakes Forest Fire Compact in 1985 with Minnesota and Michigan to provide personnel, equipment, and training to help each other in the event of forest fire emergencies. The Canadian province of Ontario joined after enabling federal legislation was passed.

On May 6, 1986, the jet stream dropped within 3,000 feet of the surface in northern Wisconsin and the Upper Peninsula of Michigan, creating numerous wildfires. Park Falls and Woodruff reported more than 80 fires. Two consecutive years of drought in 1987 and 1988 tested fire control personnel, but losses only impacted a small area, reflecting well on staff training and preparedness.

James R. Miller, forest fire staff specialist at Rhinelander, became only the seventh person to be awarded the Golden Smokey, America's highest award for forest fire prevention initiated in 1957. He received this award because of his work on railroad fire prevention at the national and international level.

The Wisconsin DNR's Tomahawk Equipment and Training Center was officially dedicated and renamed the Neil H. LeMay Forestry Center on September 24, 1988. LeMay had served the people of Wisconsin and the nation for 38 years in the forest fire program. He was inducted into the Wisconsin Forestry Hall of Fame posthumously that December.

Environmental Education

Environmental education greatly expanded over this time period, as did its visibility. Project WILD (Wildlife in Learning Design)—the first formal wildlife education program introduced to Wisconsin's school system—was started in 1985 and was led by Dr. Dennis Yonkers and Dolly Zosel. An Aquatic Education Program (fisheries) was created in 1986, and Project Learning Tree (forestry) began in 1987. Accomplishments through the early 1990s included workshop participation by more than 20,000 students trained by over 500 volunteer facilitators.

The MacKenzie Environmental Center in Columbia County (south central Wisconsin) continued to offer a variety of outdoor education opportunities to school groups and the general public. Over 30,000 people visited the facility annually while about 15,000 students participated in its programs each year. Disease concerns at the adjoining Poynette Game Farm established new access policies that barred public foot and car traffic from the pheasant-rearing portion of the facility.



Managed Forest Law (MFL)

A program offering property tax reductions for landowners in exchange for signing contracts to manage their forestland by following an approved plan and may include providing public access for recreational purposes.



Lower Wisconsin State Riverway

The final environmental impact statement was completed for the Lower Wisconsin State Riverway, and the project became official in 1989. A Lower Wisconsin State Riverway Board was appointed, and Mark Cupp—a former legislative aid to state Senator Richard Kreul—was hired as its first executive secretary. This small state agency was charged with the responsibility of administering a unique law protecting the river's natural aesthetics.

The State Riverway's length included more than 90 miles of the Wisconsin River from the dam at Prairie du Sac to its confluence with the Mississippi River and encompassed over 77,000 acres located between bluffs forming the river corridor. State ownership was already 22,600 acres, composed of state wildlife areas purchased mostly with hunting and fishing license revenues. (The author transferred and became the Wisconsin DNR's coordinator for this new project in 1989.)

The basic Lower Wisconsin State Riverway law required any landowner within the State Riverway boundary to obtain a permit from the State Riverway Board before any type of construction or timber cutting could occur. Such activities would be permitted provided they would be "visibly inconspicuous when viewed from the river during leaf-on conditions." Construction had to be low profile, earth tone in color, and contain a minimum amount of reflective glass. The law also prohibited glass containers from being used by recreationalists, required all watercraft to have a waterproof trash container, and all trash generated to be removed from the river area.

Land Control and Stewardship Fund

The DNR land acquisition program continued to thrive after ORAP funding lapsed because of the new ten-year, \$250 million Knowles-Nelson Stewardship Fund that was established in 1989. Longtime conservationist Harold "Bud" Jordahl chaired a citizen committee to design and promote the new program, and State Representative Spencer Black provided strong legislative support. The Knowles-Nelson Stewardship Program authorized 12 categories of funding:

- | | |
|-----------------------------------|------------------------------------|
| 1. General acquisition | 7. Natural Areas |
| 2. General development | 8. Stream bank protection |
| 3. Local park aids | 9. Trails |
| 4. Lower Wisconsin State Riverway | 10. Urban green spaces |
| 5. Urban rivers | 11. Natural Areas Heritage Program |
| 6. Habitat areas | 12. Ice Age Trail |

State ownership increased from slightly over one million acres in 1985 to almost 1.2 million acres by 1992.

Lower Wisconsin Riverway EIS

Numerous individuals contributed to developing a specially contrived master plan/environmental impact statement (EIS) for the Lower Wisconsin State Riverway. Long-time Wisconsin conservationist Harold "Bud" Jordahl got the ball rolling after the National Wild and Scenic Rivers Act was passed in 1968 by influencing the National Park Service to consider the lower Wisconsin River as a pilot project.

The Public Intervener's Office funded a survey conducted by University of Wisconsin-Madison landscape ecology professors Richard Chenoweth and Ben Niemann (results published in 1984) that substantiated that river users, landowners, and local officials valued scenic beauty bluff top to bluff top throughout the river valley. Scenic protection then became a primary management goal of the project.

A citizen advisory committee composed of a diverse group of 34 citizens including landowners, recreationalists, University of Wisconsin-Madison faculty, county/state agencies, and local officials conducted numerous, contentious public meetings over 18 months to review proposals and develop strategies for resolving problems. A 13-member DNR staff planning task force chaired by lead planner, David Aslakson, developed the technical support data for the plan, analyzed alternative management strategies, and conducted six public meetings to review the draft document. The environmental impact coordinator and primary author of the EIS document was Tom Watkins, Bureau of Environmental Analysis and Review. A seven-member management team chaired by DNR deputy secretary Bruce Braun provided overall direction and supervised the process.

State Representative Spencer Black (D) and Senator Richard Kreul (D) provided the key legislative support instrumental in passage of the necessary laws to implement the final master plan.

Miller and the Conservation Congress

The Conservation Congress relationship with the bureau remained contentious, especially relating to the deer program. While deer and bear ecologist Bill Ishmael quickly established rapport with Conservation Congress delegates and its Big Game Committee, Director Miller assumed the primary responsibility of establishing a positive working relationship with its chair, Bill Murphy, and its vice-chair, Henry Liebbezeit. A variety of new programs and issues including deer quotas, extended deer seasons, bear quotas, a total redesign of the goose hunting season structure, license increase needs, and alternative-funding pursuits were explored during this period.

Jay Reed, the *Milwaukee Journal* outdoor writer, covered many of the wildlife management issues. He wrote several in-depth articles about the related activities including rather colorful descriptions about Miller-Murphy battles. However, Reed declined to write about a demeaning "Paper Ass" award the Conservation Congress presented Miller to lambaste the deer program (other DNR administrators also received the award). He considered the award distasteful and very inappropriate. The award drew harsh criticism of the Conservation Congress leadership from several fronts before it was eventually terminated.

Despite these distractions, Miller worked diligently to move issues ahead using compromise based on well-thought-out science and the needs of the resource. Keeping his composure and objectivity wasn't easy while enduring personal, degrading attacks, but he did. Maintaining his professionalism under fire served not only to advance his wildlife management goals but earned him the respect of the participants.

The Gamekeepers

Conservation Congress

The Conservation Congress received mixed reviews during the period. On one hand, they generally supported hunting, fishing, and trapping license increases and often appeared at legislative hearings in support of some department regulation or new program. On the other hand, under Bill Murphy's leadership, they challenged the deer program and its associated deer quota system at almost every step of the process.

Murphy controlled all aspects of the organization's operations. Seldom, if ever, were his personal views ignored by the Executive Council or any of the study committees even when the public vote or Conservation Congress membership at large supported a differing position. He would praise the DNR staff when the information presented aligned with the Conservation Congress but could deliver extremely personal, caustic chastisement when disagreements arose.

The rank and file of the Conservation Congress revered Murphy. His dynamic personality coupled with his known power in the organization produced a mixture of respect, fear, and adulation from the majority of delegates. Some, however, challenged his dictatorial style and later quit the organization. Several such former Conservation Congress delegates joined the Wisconsin Wildlife Federation and became leaders in that organization.

The Natural Resources Board was very aware of the Conservation Congress leadership personalities and was accustomed to hearing complaints from legislators that had originated from the Conservation Congress's Executive Council or member delegates. Board members, however, remained very tolerant of what some perceived to be an obvious abuse of the statutory charge of the organization—to be advisory to the board.

Despite its shortcomings, the Conservation Congress remained a legitimate vehicle for the public to express their views on any environmental topic. Any citizen was entitled to appear and present their opinions during the Congress portion of the meeting agenda. The associated fish and game hearings represented the largest public input sessions on fishing and hunting regulations in the United States and demonstrated that the public had a regular forum on natural resource matters.

New Bureau Director

Steven W. Miller, age 35, became Wildlife Management Bureau director after John Keener's retirement in November 1984. He brought a new holistic management philosophy into the program that would greatly influence its direction toward a much broader ecological approach to land management.

Miller was born and raised in Parma, Ohio (near Cleveland). His mother had Kentucky-Scottish roots, and his father was a Hungarian originally carrying the family name of "Muhlperczl." An uncle changed the family name to "Miller" to avoid the ethnic prejudices of the time. Miller was about ten years old when he read about some Fish and Wildlife Service personnel counting ducks. Fascinated with the idea, he wrote to that federal agency for the publication *Waterfowl for Tomorrow*, launching what would become his life pursuit in wildlife management.

Miller was very athletic and excelled in baseball and basketball in high school. While no family members hunted, they exposed him to fishing and state park recreation. A neighbor introduced him to shooting a .22 rifle, and occasional trips with his neighbors to the Cuyahoga County Sportsmen's Club soon had him in love with the outdoors.

Miller graduated from high school in 1967 and looked for colleges offering a wildlife degree. He ultimately chose Utah State University in Logan, Utah. He was married in 1970. Between his junior and senior year, he received encouragement during an aquatic summer school class to apply for a graduate traineeship at Oklahoma State University (OSU). He applied for the traineeship and, after graduating from Utah State with his B.S. degree in fish and wildlife management in 1971, entered the OSU master's program in wildlife ecology.

The traineeship was granted to Miller from the Environmental Protection Agency in aquatic ecology, but he wanted to focus on waterfowl. As a compromise, his lead professor allowed him to study wintering common mergansers as part of a larger lake ecosystem project that was ongoing at the time. He earned his master's degree in December 1973.

Miller was very aggressive in seeking out job opportunities before he received his advanced degree, sending out over 200 employment applications. Wisconsin showed early interest and invited him to interview for a wildlife manager position in June 1973. Interviewers John Keener and Frank King gave him a verbal offer of acceptance that fit well with his master's degree schedule. He started his employment with the DNR's Bureau of Wildlife Management on January 7, 1974, and was stationed at Wisconsin Rapids (central Wisconsin).

The six-month training period that followed exposed Miller to many field stations located throughout the state, and he spent valuable time with two legendary property managers, John Berkahn at Mead Wildlife Area and Norm Stone at Crex Meadows. His first permanent assignment began in August 1974 as the game manager at Shawano (northeast Wisconsin) with a work area of Shawano County, Oconto County, and the Menomonie Indian Reservation. Miller quickly established a mentor-bond with area game manager Leroy Lintereur. Lintereur's detailed ecological knowledge and his impassioned commitment to ecosystem protection had a marked impact on Miller. This philosophy and approach to wildlife management would guide him throughout his career.

Miller's first major property management exposure was on the Navarino Wildlife Area. He said about that experience, "I had the best wildlife technician in the country to learn from... Glen Kloes." He learned the hands-on features of wildlife management from Kloes during the five years he worked with him. He counts his 1978 successful nomination of Kloes as "Wildlife Technician of the Year" as a career highlight.

Miller competed for and was appointed to an area wildlife manager position at Cumberland in 1978, where he had the rare experience of creating a new state wildlife area along with wildlife manager John Porter. The property was named the Joel Marsh Wildlife Area. Miller also was exposed to a tremendous amount of prescribed burning at Crex Meadows and the Namekagon Barrens where he got a firsthand look at the restoration of brush prairie and grassland habitat.

He competed for and received the area director position at Marinette in 1982. The director responsibilities took him out of the wildlife program for a short time as the responsibilities included general supervision of all DNR functions including forestry, fisheries, wildlife, law enforcement, parks, and environmental protection activities. In 1984, he successfully competed for the Bureau of Wildlife Management director position and reported to the central office in June 1984. He was able to work directly with John Keener for a few months prior to John's official retirement.

Miller had a lot of pride in the Wisconsin wildlife management program and its wildlife managers. When he moved into the director's position, he thought that the state program was on the brink of even greater success. He outlined his vision to wildlife managers in a September 14, 1984, memorandum:

Wisconsin wildlife management is a cultural heritage rich with traditions and achievements in game management, endangered species management, environmental protection, and public involvement that illustrate the value Wisconsin citizens place on their wildlife resources.

Wisconsin's wildlife professionals both in the field and in administration have created a respected legacy, a legacy built by overcoming ignorance, provincialism, and political opposition. This took dedication, commitment, and long hours of work as they felt their way through a new, untested science called wildlife management. Public support and interest in this heritage remains strong, and the program is poised to leap forward to new achievements and greater social benefits.



COURTESY OF DNR CREX MEADOWS

Norm Stone, Crex Meadows.



DNR FILE

Steve Miller introduced holistic management principles to wildlife managers.

The Gamekeepers

Miller was also committed to bringing a new, holistic management philosophy into the program as well as making an effort to make wildlife an integral part of people's lives; he communicated this philosophy to wildlife managers in the memo:

We're entering a new era, one anticipated and theorized over since the profession took root. Finally, in the short history of the profession, the key elements are converging allowing for development and implementation of a holistic wildlife management effort. The time is now ripe for us to harvest increased gains in political support, funding, on-the-ground accomplishments, and increased social values.

After listing the forces at work with the public supporting various aspects of wildlife in Wisconsin, Miller wrote further:

This historically unique position plus a more sophisticated society permits us to place greater value on all uses of wildlife—hunting, study, observation, trapping, photography, preservation—than we've ever known before. The ecological principles underpinning the program are now fairly well thought out and will change little, but our ability to use these principles is constantly becoming better. This scientific base coupled with refined understanding and experience in human relations is the way to obtain innovative solutions to complex problems. A good program is ready to become even better; ours is the opportunity to seize the initiative and act.

Wildlife Management Operations

Wisconsin wildlife management personnel enjoyed good funding and a supportive public in the 1980s. Annual expenditures almost doubled over eight years, increasing from \$6.6 million in 1984 to \$11.7 million in 1992. While several new wildlife manager positions were created during this period, periodic hiring freezes and a lack of legislative support prevented the hiring of more positions that had been justified by workload analysis.

Administratively, the bureau staff was composed of 11 program leaders assigned specific areas and charged with the responsibility of coordinating statewide programs in conjunction with district wildlife staff specialists. Periodic staff meetings were held by Miller to hear about program progress, address any shortcomings, and make additional assignments. By 1992, the wildlife program employed 157 full-time employees. A listing of the bureau staff and wildlife managers from 1984 to 1992 is found in Appendix N.

One of the most significant staff changes was the July 1989 retirement of long-time big game supervisor Frank Haberland, who was replaced by Bill Ishmael under the new title "deer and bear ecologist" in early 1990. Despite the controversial nature of the position, Haberland was well respected by deer and bear hunters in Wisconsin, and the Conservation Congress paid special tribute to him, noting he'd be "tough to replace." Ishmael had a lot of challenges ahead of him.

The early bureau program assistants were Margaret "Maggie" Gaffney and Dee Ferver. Ms. Ferver would eventually leave the bureau and be replaced by Gail Martin, and Maggie Gaffney would transfer to the Bureau of Fish Management. A supportive staff in a central typing pool processed most typing projects using a phone-generated dictation system, but some of the staff began to type their own correspondence and reports on personal computers (PCs). By the start of the 1990s, almost everyone had PCs and did their own typing.

Later, Miller recalled an incident that demonstrated how personnel were initially unsure of how computers would impact their positions. Gaffney, a 25-year agency veteran and very competent program assistant supervisor, came into Miller's office very worried about her job. She told Steve she thought computers would eliminate her primary typing role and that she might not be needed anymore. He assured her that not only would the computer make her job much easier but it would enable her to do many other tasks as well. Gaffney was not very impressed with Miller's advice and left

his office unconvinced. A few months later, however, Miller kidded her by suggesting he could remove the computer and replace it with her old typewriter. She let him know in no uncertain terms that this suggestion was stupid.

The downside of the increased PC use was that historical files dropped considerably in volume. Lengthy written reports on most DNR programs were no longer produced. Budget constraints contributed to this trend. The department's central filing system was eliminated, resulting in a loss of a major portion of the agency's record-keeping ability. Biennial reports, once a comprehensive review of programs, were reduced to brief generic statements of organizational purpose. *Blue Book* entries reflected similar brevity.

The upside of PC use was more rapid communications. The bureau staff program leaders could now e-mail information directly to anyone needing it. While central office staffers continued to use district staff specialists to channel any orders requiring action by field personnel, having the ability to alert individuals in advance of an actual assignment was a very efficient way to enable people to schedule time for pending work. Increased PC use for reports and other correspondence eventually ended the need for program assistants to do much typing for the staff.

Land Control

The wildlife management portion of the DNR's land acquisition program was the largest among all state agencies, with land control increasing from about 405,000 acres in 1985 to over 436,000 acres by the end of 1992. Public hunting ground lease acreage continued to slip, partly as a result of expanding state ownership but mostly because of land use and landowner attitude changes. Total lease acreage fell to about 100,000 acres by 1992.

Master Planning

Property master plans were underway on more than 100 wildlife areas. The process was very slow, however, and throughout the 1980s, a backlog of 20 or more plans were continually in process at the bureau for final issue resolution and editing before being sent to the Natural Resources Board for approval. Wildlife managers were the primary authors, but full work schedules made it very difficult to solicit input from other resource specialists and the public, write text, conduct public meetings, revise text, and submit master plans for administrative approval in a timely manner.

Wildlife area maps were important ingredients of master plans but were another time-consuming task. Field managers struggled with sketches, scale, and complexity. Once draft maps were submitted to the central office, engineer Gene Eaton *hand drew* the final maps for each plan. Fortunately, computer map technology arrived about 1985 and greatly improved quality and speed to completion.

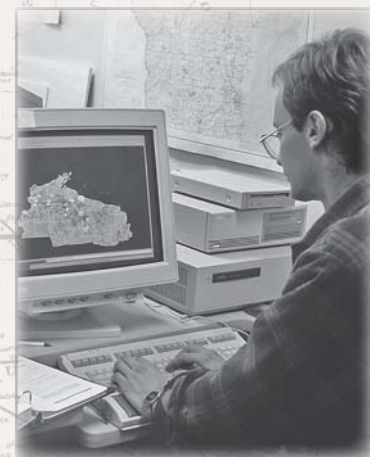
Public Participation

All aspects of the wildlife program had strong citizen input, especially if it involved administrative rules. Early in his bureau tenure, Miller had heard from many hunting organizations and individuals about their desire for more involvement with wildlife rules and policy development. Getting the word out to the public quickly became a program priority.

Publicity and briefing meetings with the public and major conservation organizations occurred soon after the basic ideas on wildlife issues or programs were generated by the staff. In the case of administrative rules, when hunting and trapping regulations were finalized through the legislative process, another round of publicity was generated on the published product.

Game Farm

The Poynette Game Farm continued to provide about 50,000 adult roosters for pheasant fall release as well about the same number of day-old chicks to over 100 conservation clubs, but budget cuts over time were reducing the program's size and scope drastically from what it had been in the early days. Game farm supervisor Lynn Hanson transferred to the private lands program at Horicon in 1989. Donald Bates replaced Hanson just before his staff was reduced to 11 and a \$400,000 annual budget was cut in half.



DNR FILE

The Gamekeepers

Wildlife Damage

Tom Hauge coordinated the wildlife damage and abatement program through most of the 1980s. The core program focused on deer and Canada goose damage, but bear, beaver, and turkey damage also received attention. In 1988, stimulated by the increasing volume of complaints and complexity that the program was placing on field managers and central office personnel, Hauge sought ways to make the program run more effectively.

Hauge and Miller were both aware that the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) conducted cooperative animal damage abatement programs in western states. Hauge explored establishing a similar arrangement in Wisconsin and was successful. A joint agreement between the two agencies committed APHIS to absorbing up to 50% of the total program cost and hiring their own staff to implement the program in the field. The new arrangement with APHIS was very successful in improving landowner service, and the resultant savings to the DNR was considerable in terms of dollars and wildlife manager time. Laine Stowell replaced Hauge on the bureau staff in June 1990 after Hauge was promoted to lead the Public Services Section in 1989.

Wildlife Education

Wildlife education was high on Director Miller's priority list. Up until this time, programs and publications like Project WILD, Project Respect, Acres for Wildlife, annual regulation pamphlets, wildlife fact sheets, public hunting grounds map, turkey education, waterfowl hunter education, trapper education, and many others were collateral duties of the existing staff. With more needs identified, Miller successfully created a wildlife educator position on the staff and hired Dr. Mary Kathleen (Mary Kay) Judd in 1988.

Judd brought an entirely different perspective to the bureau staff and the wildlife management program. She had excellent credentials, receiving her B.S. in zoology from Michigan State University in 1980, an M.S. in outdoor teacher education from Northern Illinois University in 1983, and a Ph.D. in education curriculum and instruction from Texas A&M University in 1988. While veteran wildlife managers were skeptical, her professional views from outside the traditional hunting fraternity served to strengthen the bureau's new holistic approach to management.

Miller also worked with his staff to establish a framework for a wildlife education network across the state. He had previously created a wildlife education position at Crex Meadows Wildlife Area (filled by Jim Hoefler) when he was the area wildlife manager at Cumberland. At the time, bureau director Keener had indicated that four



Dr. Mary Kay Judd (above) instructing a trapper education workshop.



locations could serve an important educational role: Crex Meadows, Horicon Marsh, Sandhill, and Mead wildlife areas. It was hoped that someday each property would have an educational center and a lead staff person to deliver the wildlife management message to the public. Miller followed through on those early plans.

A key step to fulfilling Miller's education vision was the hiring of the program's first naturalist, Bill Volkert, at Horicon in 1988. The Horicon Marsh Wildlife Area attracted thousands of visitors each year, and the burden of public contact fell on whomever on the staff happened to be available. The office receptionist accommodated most inquiries during the normal workweek. On occasion, the wildlife manager or warden gave public presentations on the weekend. The hiring of a full-time naturalist not only relieved office workers of this duty but also enabled the wildlife program to create a formal educational vehicle that reached thousands each year.

The educational goal advanced again in 1990 when biologist Dick Thiel was hired at the Sandhill Wildlife Area. In addition to more traditional educational approaches, Thiel and the bureau staff envisioned a future outdoor skills program at Sandhill. He developed a "How to Hunt" series in 1991 that offered youth training and embarked on a development schedule to construct an outdoors skills facility on the property. Because of the Sandhill property's size (14,000 acres) and a perimeter completely enclosed by a nine-foot fence, it was uniquely suited for this effort.

Miller also wanted the Wisconsin program to be out front with a new "Watchable Wildlife" initiative that was creating excitement nationwide. In 1990, Judd initiated a process of identifying a large number of wildlife viewing sites around the state. She also started a process with the Department of Transportation to have wildlife-viewing signs erected alongside the public road system.

Furbearers

Section chief, Chuck Pils directed the furbearer program through 1992 before being promoted to lead the Bureau of Endangered Resources. Beaver remained a focus among the furbearer list of muskrat, mink, otter, fox, bobcat, fisher, and marten. Beaver damage control on trout streams, public highways, and private property was a necessary step, but managing beaver on state-owned lands provided significant benefits for wetland wildlife as well as improving water quality.

Regulations and surveys were the primary management tools for wildlife biologists monitoring state furbearer populations. Permit levels were carefully calculated for bobcat, otter, and fisher trapping, and season length received scrutiny routinely along with Conservation Congress and the Wisconsin Trappers Association annual reviews.

Fur-bearing animals took on a higher priority on the bureau schedule when anti-trapping groups including the Fund for Animals and Protect All Life organizations initiated a steady series of news articles in the early 1980s. This culminated with a lawsuit initiated by the Fund for Animals organization and five individuals to ban bobcat trapping in Wisconsin in 1992. Court action resulted the following year.

Wildlife Health

The creation of a wildlife disease specialist position by the previous administration and the hiring of Dr. Terry Amundson in 1982 and technician Susan Marcquenski in 1984 were essential steps toward improving fish and wildlife health in the state. These two individuals designed and implemented innovative fish and wildlife health procedures and emergency plans long overdue in Wisconsin.

Dr. Amundson was a charismatic program leader very knowledgeable about his profession. His wife, Janice, was a veterinarian in private practice and frequently attended public meetings with her husband. They quickly established social ties with the bureau staff and became well known in the Madison community. The wildlife health program quickly became very efficient under Amundson's leadership. Tragically, Amundson was killed in an automobile accident in July 1987. Miller later filled the position with a Doctor of Veterinary Medicine, Sarah Shapiro Hurley. Technician Marcquenski continued to provide statewide fisheries health services by herself, a daunting task considering the magnitude of the state's fisheries resources.



MARINETTE



Beaver damage.



Fish health technician Susan Marcquenski.



Treaty Rights

In 1983, a federal court affirmed the Chippewa tribe's right to hunt, fish, and gather off-reservation, based on treaties signed in 1837 and 1842 that ceded the northern third of Wisconsin to the federal government. Chippewa treaty rights surfaced as the most significant social issue of the decade as the Chippewa bands exercised off-reservation deer hunting rights in 1984 and spearfishing rights in 1985 through negotiated agreements with the DNR. Public protest of Chippewa spearfishing was vehement and often violent at boat landings across northern Wisconsin, and conservation wardens were called in from around the state to keep the peace.

DNR negotiations with the Chippewa for off-reservation hunting and fishing rights in northern Wisconsin (the ceded territory) began in earnest after 1984. Annual off-reservation hunting agreements took an enormous amount of Miller's time as well as other staff time. Negotiations were often frustrating when technical input was ignored or meetings failed to accomplish anything significant. Hunting was an important single issue but was often overshadowed by the larger issue of the Chippewas' perspective of being a sovereign nation.

On February 18, 1987, a ruling by U.S. District Court Judge James Doyle, Sr. affirmed the right of the Chippewa to exercise their treaty rights, which he defined as "the right to exploit virtually all the natural resources in the ceded territory" necessary for a "modest living." The ruling allowed for the state to impose conservation restrictions on the Chippewa as long as the restrictions were "reasonable and necessary to conserve a particular resource."

Shortly after his ruling, Judge Doyle died and was succeeded in the case by U.S. District Court Judge Barbara Crabb. On August 21, 1987, Judge Crabb ruled that in addition to any conservation restrictions, the state could regulate Chippewa treaty rights in the interest of public health and safety. She considered the question of commercial timber rights with this ruling and, at this point, didn't exclude commercial timber harvesting from tribal treaty rights.

Judge Crabb determined in 1988 that the ceded territory did not have enough available resources to provide Chippewa families the "modest living" that Judge Doyle had intended. The following year, she established the right of the Chippewa to spearfish musky and walleye off-reservation.

As always, deer were a critical ingredient. When the treaty rights issues were deliberated within the federal court in 1989, the tribe stipulated that they would follow the DNR deer population monitoring system, the process for setting unit-specific population goals, and harvest management methods. Bureau director Miller spent nearly a full day in federal court describing the deer population management system, and the Chippewa tribal biologists testified in agreement with the DNR's methodology. (Given all of the controversy with treaty rights issues, Miller anticipated the supportive court decision that followed would finally establish deer program credibility with the Conservation Congress... it didn't happen.)

On May 9, 1990, Judge Crabb ruled on the tribe's right to harvest deer within the ceded territory, establishing regulations that allowed the Chippewa to hunt deer from Labor Day to December 31 but prohibiting "shining" deer for night hunting. This ruling also established that the Chippewa were entitled to one half of the game harvest. Judge Crabb ruled on October 11, 1990, that the Chippewa couldn't sue the state for damages over the treaty rights that had been denied for so many years. Chippewa spearfishing continued on northern waters, and the Chippewa also harvested timber in state and county forests that year.

In a ruling on February 21, 1991, Judge Crabb concluded that commercial timber harvesting was not part of the Chippewas' treaty rights. The long court-contested conflict between the Chippewa bands and the state of Wisconsin finally came to an end on March 19, 1991, when Judge Crabb issued her final judgment, summarizing the court's decisions.

Dr. Hurley continued the vigilant wildlife health program initiated by her predecessor and established an effective communications network with field personnel that ensured disease monitoring efforts were regular and up to date. Her keen sense of humor coupled with an excellent communications style helped her build an effective wildlife disease control network and establish excellent rapport with field personnel.

Captive wildlife licensing (game farms, deer farms, wildlife exhibits, etc.) was still an unresolved problem from the previous decade. Wildlife health was a priority concern because of the large number of species in captivity and their frequent escape record. Further, captive wildlife regulations were known to be inadequate, and national warnings about wildlife health concerns were getting more attention. Dr. Hurley became very active in pursuing ongoing regulations work with Bureau of Endangered Resources staffer, Randy Jurewicz, and Bureau of Law Enforcement staffer, warden Dave Claybach, to address needed law revisions.

Private Lands Management

The rising importance of private lands for wildlife finally justified seeking special funding and positions for the bureau. The first private lands biologist, Todd Peterson, was hired in April 1984 and assigned to the first project, which was in Dodge County. Peterson transferred to a wildlife manager position at Plymouth in 1986 and was replaced by Alan Crossley. Newly hired Michael Foy filled a new private lands position in Green Bay and later transferred to Madison's Southern District office.

At its peak in the early 1990s, seven positions were dedicated to the Private Lands program along with annual work assignments to wildlife managers and wildlife technicians. Fieldwork involved wetland restoration, warm season grass establishment, food plots, and prescribed burning. Most importantly, private lands managers joined with other wildlife managers to participate in the promotion of Farm Bill provisions and were instrumental in enrolling tens of thousands of acres into those programs.

The Conservation Reserve Program (CRP) was created in the 1985 Farm Bill and renewed in the 1990 version. The Wetlands Reserve Program (WRP) was created in 1990 within the much larger CRP to protect wetlands and associated grassland corridors. These programs were the equivalent of the old Soil Bank Program and were a boon to the pheasant population as well as other ground nesting wildlife. Wildlife managers worked very hard with county conservation committees to generate land-owner interest in these programs.

In part, Wisconsin played a major role in enacting the WRP. Wisconsin Senator Robert Kasten (D) was on the Senate Agricultural Committee at the time and took special interest in the WRP initiative. Todd Peterson—who was recruited to the bureau staff in May 1988—was given the assignment by Miller to do what he could to help the new WRP concept become reality. Peterson worked long hours with Senator Kasten's staff and was instrumental in producing the WRP language that Kasten eventually inserted into the 1990 Farm Bill.

Federal Funding

Two major federal programs surfaced during the Miller era that became one of the most significant wildlife management accomplishments of the decade. The North American Waterfowl Management Plan (NAWMP) was initiated in 1986 to improve strategies and funding for continental waterfowl production. As previously mentioned, Congress also created the North American Wetlands Conservation Act (NAWCA) in 1989 to protect, restore, and enhance wetlands. (Later in his career, Miller would serve at the national level on the NAWCA council.) While Wisconsin participated in the creation of these two programs, it did not compete adequately for funding because of staffing shortcomings. Initially, the programs were assigned to the migratory game bird specialist, John Wetzel, along with Ducks Unlimited's Matching Aids to Restore States Habitat (MARSH) program.

John Wetzel transferred to La Crosse in 1989 to replace Ron Nicklaus, and Jon Bergquist became the new migratory game bird specialist the following year. In addition to assuming his regular duties, Bergquist negotiated an innovative deal with

In 1985, duck plague, or duck virus enteritis (DVE), was detected in seven locations in two states, five in Maryland and two in Wisconsin. The two outbreaks in Wisconsin were at the Racine Zoo in Racine and the Kidder Game Farm located near Milton. Both cases were coordinated with the U.S. Fish and Wildlife Service Health Lab by Dr. Terry Amundson and resulted in *depopulation* of the entire surviving flock.

Depopulation

Killing all animals, e.g., a population that may be impacted by a virulent disease.

The Gamekeepers

Ducks Unlimited that produced significant revenue for waterfowl habitat program. He convinced Ducks Unlimited to match Wisconsin's state duck stamp contribution to Canada for habitat improvement projects benefiting Mississippi Flyway states. Coupled with NAWCA and Canadian Wildlife Service funds, the deal generated an eight-fold increase in the funding level.

Steve Miller was aware of new NAWMP and NAWCA opportunities and was successful in getting a wetland habitat coordinator position established by the Legislature in 1990, hiring Tim Grunewald in 1991. Almost immediately, Grunewald began writing NAWCA grants, which generated millions of dollars for Wisconsin, as well as coordinating state duck stamp and MARSH projects.

Grunewald was also able to use the WRP to hire and maintain four wildlife biologist positions that enabled the county-based *Natural Resources Conservation Service (NRCS)* to be much more effective in protecting and managing wetlands. He also facilitated the purchase of wetlands in southeast Wisconsin using an ingenious method of matching a small amount of state money with a large amount of federal dollars (one to four ratio). With NRCS protecting the lands with a 30-year easement, Grunewald then coordinated partners like Audubon Society, Pheasants Forever, and Ducks Unlimited to acquire fee title for permanent protection using Knowles-Nelson Stewardship grant monies.

Statewide Meeting

Despite budget restrictions, the bureau was able to conduct one major meeting of all wildlife managers, wildlife technicians, and wildlife researchers each year. These meetings provided a forum for keeping everyone informed and educated about wildlife management, and it also created an esprit de corps among its personnel vital in a bureaucratic system that tended to be hard on morale.

The statewide meeting also enabled other DNR programs to interface with wildlife personnel and often was the only opportunity for those programs to hear about wildlife management accomplishments. Research biologists, endangered resources staff, foresters, conservation wardens, fisheries biologists, and a number of environmental protection personnel participated at the annual meeting.

Program Summary

A 1989–91 expenditure analysis identified the major chunks of what the program was accomplishing by the end of the Miller era. Basic program services—the meetings and paperwork end of the business—took 33% of the budget. Land acquisition and leasing was next at 23%. Wildlife damage and nuisance control (12%), habitat maintenance (10%), and wildlife population management (6%) formed the balance of program expenses. These five categories accounted for 84% of total expenses.

The 1989–91 biennial report revealed a more comprehensive summary of major management activities:

- **Wetland Restoration** – Eight wetlands covering 171 acres were restored in Racine and Kenosha counties. A new 3,000-acre wetland complex named the Hook Lake-Grass Lake Wildlife and Natural Area was purchased in Dane County. Another 23 wetland tracts involving 2,100 acres in wildlife areas and Waterfowl Production Areas were purchased in Dane, Rock, and Jefferson counties. Additional acreage was purchased in Polk and Barron counties but was not quantified.
- **Wetland Maintenance** – Almost 150,000 acres of impounded wetlands and over 200 miles of dikes were maintained by wildlife managers and technicians statewide. Ducks Unlimited and Wisconsin Waterfowl Association organizations partnered with the DNR to replace 34 water control structures. Horicon Marsh was dedicated as a Wetland of International Importance by the Convention of Wetlands of International Importance, an international treaty for the conservation of wetlands.

Natural Resources Conservation Service (NRCS)

A federal agency within the U.S. Department of Agriculture that is organized to help landowners improve agricultural productivity, control erosion, enhance water supplies, improve wildlife habitat, and reduce damage caused by floods and other natural disasters.

- **Grasslands** – Almost 50,000 acres of grasslands for ground nesting species and habitat diversity were maintained or improved on public lands through burning, mowing, herbicide application, and grazing. Over 4,000 acres of new grassland was established by direct plantings on public lands, and almost 5,000 acres of grassland was established on private lands.
- **Forest Openings and Timber Management** – The forest openings program created 1,288 acres of openings, and over 7,000 acres of timber was harvested and sold on state lands to restore early succession forest habitat. Over 350,000 acres of wooded or brushy habitat were maintained on state and county lands.

Wildlife Research

(Author's note: Gerald Bartelt provided extensive research and editing for this section.)

This was a period of growth for the Wildlife Research Section. It was also a period in which the research agenda expanded to include many more issues. Kent Klepinger was the Bureau of Research director from 1981 to 1990. Klepinger retired in 1990 and was replaced by the Wildlife Research Section leader, Robert Dumke. Jerry Bartelt was promoted to fill the Wildlife Research Section leader position vacated by Dumke.

In the early 1980s, the Wildlife Research Section was divided into three groups: Farmland Wildlife Research, Wetland Wildlife Research, and Forest Wildlife Research, with a supervisor for each group. It remained that way until 1987 when the three groups were restructured to a Northern Wildlife Research Group supervised by Bill Creed, a Southern Wildlife Research Group supervised by LeRoy Petersen, and a Special Projects Research Group supervised by Jerry Bartelt.

The newly created Special Projects Group focused on more ecological studies (e.g., control of purple loosestrife, role of water quality to provide aquatic vegetation for canvasbacks in shallow water lakes), environmental education research, wildlife toxicology research, and the wildlife surveys program.

At the start of the period, the Wildlife Research Section included a section chief, 13 scientists, and three wildlife research technicians. By the early 1990s, the section chief supervised 19 permanent scientists, two project scientists, two wildlife research technicians, and one part-time statistical clerk. Statisticians Gene Lange, Mike Staggs, and Paul Rasmussen aided section staff with project design and data analysis. Editing and publication specialists included Ruth Hine, Sue Nehls, Donna Mears, Charmaine Daniels, Stephanie Brauer, Ann Forbes, and Betty Les.

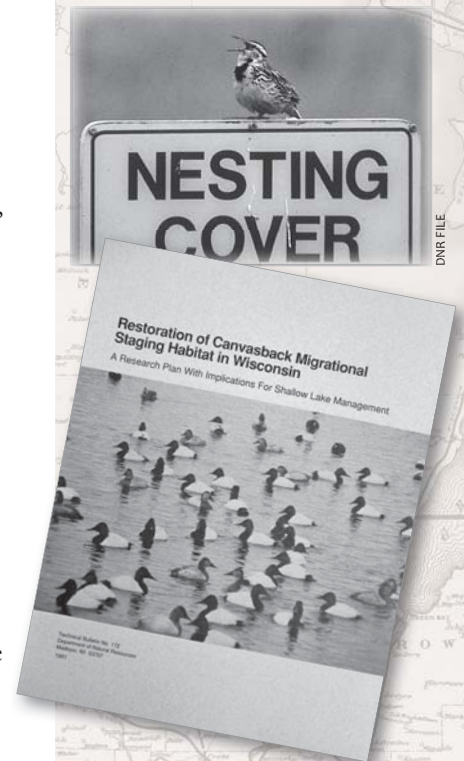
Funding for the Wildlife Research Section was primarily from the Pittman-Robertson federal aid grant used to support wildlife research projects and staff salaries. In addition, some funds from the state's segregated Fish and Wildlife Account were dedicated to the section. At the end of the decade, searching for outside funding became a common activity.

Changing Issues and New Programs

During this period wildlife research expanded from primarily single species game research to include nongame species and groups of species. More complex issues were beginning to be addressed, sometimes requiring multiple scientists on a single project. Use of college students as interns and LTEs for collecting data during the field season became more important, leaving time for scientists to manage complex projects, form research teams, and search for outside dollars.

New research issues included wildlife management on private lands, environmental education, wildlife health, control of purple loosestrife, introduction of trumpeter swans, management of shallow-water lakes, population trends of nongame grassland birds, black bear management, reintroduction of elk, moose, and caribou, impacts of contaminants on wildlife, and revamping the wildlife surveys program.

Ongoing research topics included improving duck nest success on public lands, turkey population dynamics and the role of turkeys in causing crop damage, Canada goose management and harvest, bear and furbearer population management, and forest management for ruffed grouse and deer.



Wildlife Surveys

During the 1980s, the wildlife surveys program was conducted by Gene Lange located in the Technical Services Section. During 1988–90, the surveys program underwent a thorough review because of budget restraints. A committee composed of wildlife management, endangered resources, and research personnel evaluated all wildlife surveys conducted by the agency. Only surveys considered critical for managing wildlife were recommended for continuation.

The results of the survey analysis were incorporated into the 1990 wildlife surveys report. Any new surveys requested after 1990 required a recommendation from the appropriate Species Advisory Committee before it was brought to the Wildlife Surveys Committee. This committee evaluated the requested survey to make sure that it was adequately designed to answer the question posed and that there were enough funds and staff to conduct the survey before it was recommended for inclusion in the wildlife surveys program. If recommended, the requested survey was sent for final approval by the appropriate bureau.

The wildlife surveys program has been managed by Brian Dhuey since 1990 and remains an extremely valuable program. Data collected by this project are used on an almost daily basis to provide information to DNR staff, the media, and the public. More than sixty recurring wildlife surveys are completed annually to monitor wildlife populations, harvests, and hunter participation in the state. Wildlife survey and database products are used by both internal and external customers for the following:

- Monitoring registered harvest, monitoring and modeling populations, setting hunter permit levels and season lengths, and disseminating harvest and population information.
- Reviewing hunter participation rates to set hunting season quotas and lengths.
- Determining hunter attitudes/effort to address proposed legislative initiatives, Conservation Congress proposals, public concerns, and license sales trends.
- Monitoring and modeling population trends in both game and nongame species over time to evaluate habitat and management practices.
- Providing critical data for chronic wasting disease (CWD) monitoring and management by tracking harvest and test results for CWD monitoring efforts and issuing free landowner and special harvest permits.

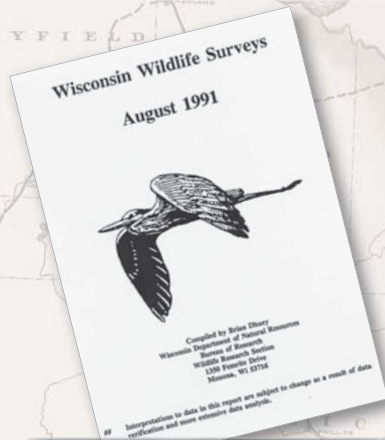
Private Lands Studies

Private lands management and research became important during this period, and a program to address these needs was established. Several studies were initiated to develop and determine the effectiveness of private lands management.

Bob Dumke initiated a large study to improve private lands habitat for bobwhite quail and other wildlife in southwestern Wisconsin. The study and the placement of habitat were planned on an entire watershed or on an entire ridge complex. It was the first such study to plan wildlife habitat in a larger context. Many miles of shrubby hedgerows and numerous food plots were planted to improve quail and other wildlife populations. Both bobwhite quail and songbird use were evaluated for a response to habitat improvement on these private lands. Unfortunately, this effort did not result in great success. Private landowners did not always maintain the shrubby cover or food plots, and it was discovered that winter severity often caused quail populations to decline despite improved habitat.

Wildlife manager Todd Peterson and researcher Bill Vander Zouwen initiated another large study on private lands to improve habitat for pheasants, ducks, and cottontail rabbits in Dodge County. When Peterson transferred to a new position, Alan Crossley replaced him as project manager. The research component of the project evaluated the impacts of habitat improvement on these wildlife populations.

Other private lands studies included restoration of gray partridge in eastern Wisconsin conducted by Bob Dumke and songbird use in southern Wisconsin woodlots conducted by Ron Gatti. Dumke also hosted a large conference on private lands management that was attended by professionals from all over the United States. The conference proceedings later received wide use as a college text.



Wildlife researcher Brian Dhuey.

Wildlife Education Studies

As wildlife education expanded in the DNR, a new research program was formed to evaluate the effectiveness of these programs. Project WILD was implemented in Wisconsin, and Dolly Zosel (now Ledin) evaluated the program's effectiveness. When Zosel moved to a new position at the University of Wisconsin-Madison, Susan Gilchrist was hired and continued this evaluation. Gilchrist continued to develop and test environmental education programs such as "One Bird-Two Habitats," which emphasized the connection between Wisconsin's migratory birds and their wintering grounds in Central America.

Shallow-water Lake Studies

Management of shallow water lakes became a major "Secretary's Issue" (an administrative priority) in the late 1980s, and a new program was established to manage shallow water lakes. Using an important wildlife species as an important lake health indicator, Rich Kahl determined the status of canvasback populations and diving duck migrational habitats in Wisconsin and evaluated rehabilitation techniques for these aquatic ecosystems.

It was thought that by improving migrational habitat at former staging sites or by developing new ones, the fall distribution of migrating canvasbacks could ease heavy dependence on the few remaining suitable migration areas. Although canvasback ducks were the target species for habitat development, it was hoped that other species would benefit from improved aquatic ecosystems. Unfortunately, submergent vegetation used by diving ducks was negatively affected by water quality, water depth along with wave action, and the presence of carp, preventing large-scale restoration of diving duck habitat.

However, research results from the canvasback project contributed significantly to the later development of the Winnebago and Petenwell-Castle Rock Comprehensive Management plans. These plans were used to guide management to improve water quality, fisheries, and wildlife use of these water bodies. Furthermore, this information was frequently provided to fish, water resources, and wildlife managers responsible for management of lakes Winnebago, Poygan, Winneconne, Butte des Morts, Puckaway, Beaver Dam, Fox, Big Muskego, and Koshkonong through formal (public meetings and committee assignments) and informal (interpersonal communication) avenues to implement the DNR's Shallow Waters Lake Initiative.

Trumpeter Swan Studies

A new program to restore trumpeter swans in Wisconsin was established by the Endangered Resources staff during the 1990s. Working with Endangered Resources staff and Becky Able and Dr. Stan Temple from the University of Wisconsin-Madison, researcher Mike Mossman defined and identified suitable habitat for release of captive-raised trumpeter swans and evaluated different release techniques including decoy rearing. The data were used to guide restoration efforts and set recovery goals for this endangered species in Wisconsin.



LEFT: R. LILLIE, RIGHT: R. QUEEN

Black Bear and Furbearer Studies

Bruce Kohn conducted a five-year study on Wisconsin's black bear population to find acceptable harvest levels, which resulted in the first black bear population monitoring and population management program in the state. Further research on bears resulted in the development of a "Bear Bait Station Index," now used to monitor bear population trends throughout the state. Kohn also developed the original bear population model for Wisconsin and delineated bear management zones for a controlled harvest. This was a landmark study increasing the understanding of this species in Wisconsin and developing a harvest program to ensure the future of the black bear in the state.

Kohn also conducted a study that provided the first fisher distribution maps and population estimates in Wisconsin since they were reintroduced into the state in the 1950s. His population model for Wisconsin's fishers and harvest goals for fisher trapping seasons was institutionalized. This research established the knowledge for our modern fisher management program.

Kohn, assisted by graduate students from the University of Wisconsin-Stevens Point, conducted research evaluating the success of the initial American (formerly pine) marten reintroduction efforts in Wisconsin. The marten population became established, but their distribution was limited to the Nicolet National Forest in north-eastern Wisconsin. Kohn, along with wildlife manager Ron Eckstein, surveyed the marten population in 1983–84 using live trapping, winter track counts, and records of direct observations. The results were published by Kohn and Eckstein in Research Report 143, *Status of Marten in Wisconsin*, 1985.

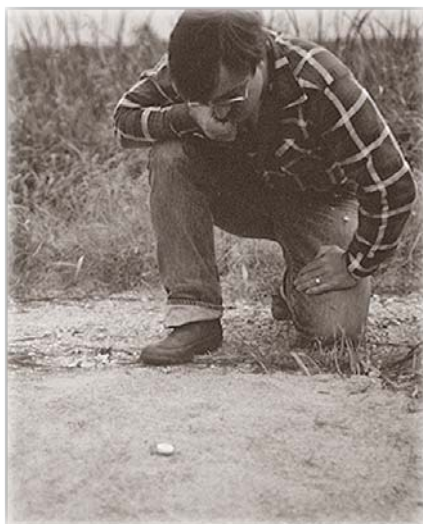
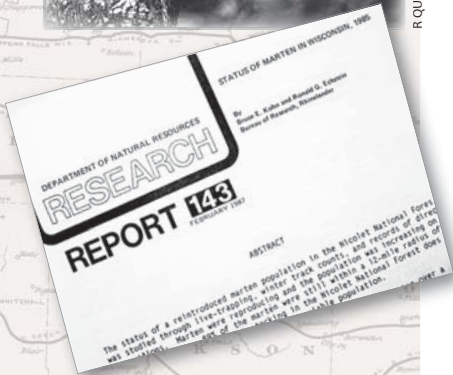
Kohn designed, coordinated, and conducted another effort to translocate American martens from Minnesota into Wisconsin at a second release site in the Chequamegon National Forest in 1987, and 139 martens had been released in the area by 1990. The U.S. Forest Service provided endorsement, funding support, and help from its personnel. Later surveys documented a declining population, so another release was planned for the new millennium.

The Wisconsin furbearer track survey program was developed by Kohn and Creed and provided an index to population trends. Wildlife managers and wildlife technicians assumed the lion's share of annual track surveys. These surveys proved most valuable in monitoring marten populations in the two national forests. It also substantiated that the Nicolet population was well established but not thriving and only within a dozen miles or so of the release site. The Chequamegon population decline was also detected by this technique.

Wildlife technician Jim Ashbrenner coordinated and did most of the work involving a statewide carcass collection of harvested otters, fishers, and bobcats. He also organized necropsies to determine the sex, age, and reproductive success for these species. Population and estimates and harvest quotas are developed from these data.



R. QUEEN



LEFT AND CENTER: C. BARTELT, TOP RIGHT: H. LANCE, BOTTOM RIGHT: W. WHEELER

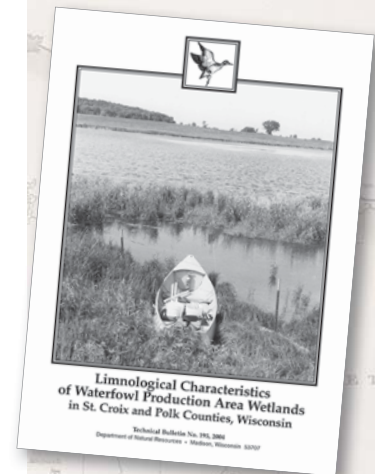
Waterfowl Studies

Improving duck nest success on public lands was a major research issue during this period. Duck nest success was as low as 10% on some public lands, primarily because of mammalian predators destroying duck nests. Several studies were initiated to address this problem:

- Use of dense nest cover (primarily switchgrass) was evaluated by Jerry Bartelt and Larry Vine in the Horicon area. Ron Gatti did a more extensive study of dense nesting cover across the state. He discovered that monotypic switchgrass did not deter predators from entering these fields and the cover was not used by some duck species such as blue-winged teal.
- LeRoy Petersen evaluated the use of electric fencing to exclude predators from duck nesting fields. High maintenance costs and limitations of the small areas that could be fenced made this technique impractical.
- A study conducted by Jerry Bartelt related duck nest success to the abundance of alternate prey and predator abundance with the hope that increasing alternate prey abundance might buffer duck nest success. This didn't work because predators ate eggs from duck nests incidental to hunting other prey. (Therefore, predator populations were not strongly related to alternate prey abundance.)
- Gatti conducted a study on brood survival of mallard and blue-winged teal ducklings in southeastern Wisconsin to determine the mortality rate at this vulnerable life stage.
- Jim Evrard conducted a large study in the prairie pothole country of Wisconsin (St. Croix County) evaluating management techniques to improve the production of waterfowl and pheasant populations on private and public lands. Evrard investigated the role of different grass nesting covers, intensive short-term rotational grazing, different burning regimes, and abundance of aquatic *macroinvertebrates* and *macrophytes* (along with co-researcher Dick Lillie) on duck use and duck nest success.

The practice of raising minnows for bait and walleye fry in wetlands on federal Waterfowl Production Areas was discontinued when it was found these fish depleted the aquatic macroinvertebrates being used by ducks.

A major management program was underway during this time period: an effort to encourage Canada geese to migrate south earlier from Horicon National Wildlife Refuge. This program removed food plots from the refuge and caused disturbance by propane exploders and airboats at night when geese were roosting on the marsh. The program was evaluated by Jerry Bartelt using radio telemetry on Canada geese. Rather than move south earlier, family groups of geese were disrupted and became more susceptible to hunting, resulting in increased mortality. Another use of these radio-collared geese was to locate their nesting areas on the Hudson Bay Lowlands in northern Ontario and their use of wintering sites in southern Illinois and northwest Kentucky.



Macroinvertebrates

Organisms large enough to be seen without a microscope and which do not have a backbone (e.g., insects and aquatic worms).

Macrophytes

Aquatic plants large enough to be seen by the unaided eye; they may be submergent, emergent, or floating vegetation.



LEFT: R. GATTI, CENTER AND RIGHT: R. LILLIE



J KUBISIAK



DNR FILE



J KUBISIAK



DNR FILE



R QUEEN

Upland Game Bird Studies

Turkeys were becoming abundant in the southwestern part of the state, and farmers were concerned about crop damage by the expanding flock. John Kubisiak, with the assistance of Neal Paisley and Bob Wright, conducted a seven-year (1988–94) radio telemetry study evaluating the population dynamics and crop use by turkeys in southwestern Wisconsin. The study found that turkeys did little crop damage. Most damage observed was attributed to other species like deer and raccoons. Scott Craven and Clint Miller from the Department of Wildlife Ecology at the University of Wisconsin-Madison conducted important research determining the magnitude of turkey damage by using a mail survey to farmers. The results of this study, a first in the Midwest, confirmed that turkey damage was minor.

Recommendations from the Craven-Miller study included increased public educational efforts, support for a fall hunting season, and an increased level of hunting permits. In addition, with the assistance of Robert Rolley, population dynamics data collected from the radio telemetry study indicated that fall hunting needed to be closely regulated in light of annual variation in reproduction and stressed the importance of monitoring trends in recruitment.

Sharp-tailed grouse habitat continued to decline across the state through the decade. Larry Gregg conducted a study to determine the best places in northwest Wisconsin to manage for sharptail habitat and developed guidelines for habitat management. A related study by Gregg measured the harvest rate of sharp-tailed grouse and determined the impact of hunting on the population. A result of the study was to establish a permit system and a quota system for harvesting sharp-tailed grouse in Wisconsin.

Invasive Species Study

Rich Henderson initiated a study on the ecology and control of purple loosestrife, an aquatic invasive plant displacing native wetland vegetation. This study documented the extent of purple loosestrife in the state at the time and evaluated management strategies (including biological control) to control it. The findings resulted in legislation declaring purple loosestrife a noxious weed, changed emphasis of purple loosestrife management from mechanical and chemical control to biological control, were instrumental in establishing the DNR's biological control program for purple loosestrife, and raised the consciousness of citizens regarding the threats of invasive species. Today, biological control of purple loosestrife is having some success in limiting the growth and expansion of this invasive plant.

Wisconsin Cooperative Wildlife Research Unit

The Wisconsin Cooperative Wildlife Research Unit, located at the University of Wisconsin-Madison and under the leadership of Dr. Donald Rusch, continued to provide programmatic assistance for waterfowl management, especially for Canada geese during this period. Studies included Canada goose reproduction in the Eastern Prairie Population, an evaluation of the ever-increasing database of neck-collared goose observations within the Mississippi Valley Population (MVP), abatement techniques to alleviate crop damage by geese, and spring distribution and foraging by Canada geese in Wisconsin.

Neck-collared goose observations provided essential information (survival and movements of MVP geese) for management of Canada geese in the Mississippi Flyway and Wisconsin at this time. The annual Canada goose surveys continued each spring in Manitoba, offering several wildlife managers the rare opportunity to experience the tundra and marvel at its fascinating environment. The Coop Unit was also doing additional waterfowl research studying redhead ducks at the Horicon National Wildlife Refuge.

Rusch conducted ruffed grouse research across a wide latitudinal range from Wisconsin to the Interlake area of Manitoba. This allowed Rusch and his students to explore numerous aspects of grouse population dynamics and the strength of the ten-year cycle across a broad region. The study of grouse in southern Manitoba also

offered some wildlife managers the experience of working in the Canadian environment. Rusch's work on mortality and dispersal of ruffed grouse in central Wisconsin was important for setting harvest regulations in Wisconsin. Rusch's grouse legacy continues in the high profile work by Dr. Scott Walter (a Rusch student) on the disappearance of grouse from southwestern Wisconsin today.

Other Collaborative Research

Dr. Robert Ruff of the University of Wisconsin-Madison was involved with environmental impact assessments with the DNR, especially in watersheds in the *Driftless Area*. He also collaborated with Bob Dumke in the early stages of the Dodge County private lands research and management project and other private lands issues with Bob Dumke during the 1990s.

Dr. Stan Temple was involved with a number of wildlife reintroduction projects with the DNR in the 1990s including trumpeter swans and peregrine falcons. He and his University of Wisconsin-Madison students did a number of studies in Wisconsin on both forest and grassland songbirds that were important to understanding the role of fragmentation, edge effects, and patch size on reproductive success. Temple also started a citizen-monitoring program to track bird populations in Wisconsin that resulted in two books about the status and trends of Wisconsin birds.

Professors from the University of Wisconsin-Stevens Point continued to collaborate with DNR scientists during this period. Dr. Ray Anderson continued studying black bear home ranges, habitat use, food habits, productivity, and survival. Dr. Lyle Nauman supervised a graduate student working on sharp-tailed grouse. Dr. Eric Anderson supervised a student investigating methods designed to provide an index for determining bobcat population abundance.

Assistance to Other Programs

Wildlife researchers continued to play prominent roles in wildlife management decisions and issues:

- Keith McCaffery played a critical role in a treaty rights court case with the Chippewa bands over off-reservation hunting and trapping rights from 1984 to 1989.
- After interest surfaced in the private sector in reintroducing elk, moose, and/or caribou into Wisconsin, DNR researcher Linda Parker wrote a feasibility study in 1990 recommending against these reintroductions because of potential disease problems and agricultural crop depredations. However, outside-the-agency decisions led to elk being released in the Clam Lake area of northern Wisconsin.
- Bruce Kohn played a vital role in the establishment of a regulated bear hunt to control the harvest of bears after 1985.
- Kohn and Bill Creed played an important role in providing scientific data and analysis in the court case brought by the Fund for Animals organization in 1992 to list the bobcat as a threatened species, which would have banned hunting and trapping of bobcats in Wisconsin, a case that went to the Wisconsin Supreme Court. Dr. L.B. Keith and Dr. Stan Temple from the University of Wisconsin-Madison also provided important consultation and analyses for the court case.
- Dick Hunt played a key role in decisions made for Wisconsin waterfowl hunting seasons and management as a representative to the Mississippi Flyway Council's Technical Section.
- Bob Dumke was a key person helping conduct a workload analysis for the Bureau of Wildlife Management.
- Keith McCaffery, John Kubisiak, and Robert Rolley regularly attended the Midwest Deer and Turkey Study Group meetings and were important contributors to this group.



Driftless Area
The unglaciated portion of
southwestern Wisconsin



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The Gamekeepers

- The entire Forest Wildlife Research Group contributed a chapter on deer harvest management to the 1994 Wildlife Management Institute's publication *White-tailed Deer Ecology and Management*.
- Keith McCaffery contributed to the "Harvest Management" chapter in the fifth edition of The Wildlife Society's book *Research and Management Techniques for Wildlife and Habitats*, published in 1996.

Species Management

The comprehensive planning process and species strategic plans continued to guide wildlife management work scheduling and budgeting under Harry Libby. Wildlife research provided the facts managers needed to manage individual species effectively. Wildlife committees existed for individual species (like deer) or groups of species (like furbearers) and met throughout the year to develop strategies and identify management priorities to be implemented the next biennial budget cycle.

Deer management and its associated regulations took the most time and effort year-round as it had for the last 40 years. Canada geese were next on the priority list with ducks, pheasants, bear, and furbearers getting periodic bursts of attention. Beyond documenting harvest trends with annual surveys, the rest of the small game category received attention only when the Conservation Congress asked or field observations generated inquiries.

The success of the turkey reintroduction gave cause to examine other possibilities. Gray (Hungarian) partridge populations were hanging on in eastern Wisconsin, and research indicated that this game bird offered possibilities. Moose and elk habitat existed in northern Wisconsin, and reintroduction of the two species was being discussed. Wildlife managers, however, thought potential disease concerns, deer competition, and agricultural fences limited these latter two species from being reestablished.

Deer Management

In the 1980s, deer populations were rapidly growing in all parts of the state. Deer habitat management by wildlife managers was still emphasized in the north but was fading as a program priority. The Northern Forest Habitat Program started in the early 1970s emphasized aspen and forest openings maintenance. As aspen market values increased in the 1980s, spending state time and money to improve aspen regeneration became less necessary.

In reflecting on the period, deer researcher Keith McCaffery noted, "The 'birth' of biodiversity and ecosystem management in the mid-1980s led some neo-conservationists to criticize openings in the forest and early succession species in general. The ensuing debate, falling revenues, and rising deer numbers led to the virtual end of the program."

About this same time, deer baiting and feeding was growing in popularity, masking any deer carrying capacity changes that might have resulted in declining aspen and opening acreages. Both baiting and artificial feeding practices soon drew public debate and continued for many years. The volume of bait used in the north was terrific. Some feed mills reported they would have gone out of business if it were not for purchases by area hunters.

The annual deer harvest had been increasing steadily since 1971. When the annual kill exceeded 100,000 year after year, rather than generating more confidence that deer research and wildlife management knew what they were doing, hunters and the Conservation Congress continued to resist higher antlerless harvest quotas. The result was cumulative, and the subsequent under-harvest meant too many deer were going into the winter.

Not surprisingly, despite DNR warnings and a constant barrage of data substantiating the dire consequences of exceeding over-winter goals, the now routine practice of annual deer quota negotiations with the Conservation Congress leadership continued into the 1980s. Keener's attempts to change this practice started the momentum, but it wasn't completed. Steve Miller vowed that ending this conflict would receive high priority on his work list.



DNR FILE

During a June 1984 meeting with the Conservation Congress leadership including chairman Bill Murphy, vice-chairman Hank Liebzeit, and Big Game Committee chairman David Ladd, Miller announced that quota negotiations were ending. He told them over-winter goals would be codified by administrative rules, and the public could review deer management unit boundaries every three to five years. Murphy and the Conservation Congress Big Game Committee were not supportive of this new bureau position on deer quotas and expressed their discontentment at every opportunity during the rules process that followed. The new Conservation Congress strategy shifted to questioning the accuracy of population estimates. While some minor quota concessions were given for the 1985 hunt, for the most part, the biological harvest level recommended by deer researchers and wildlife managers was put in place at higher levels for the next several seasons.

Deer Harvest

The 1984 harvest was the highest in the nation at 255,726. Yet deer researchers were still confident that continued high harvest quotas were necessary to check the growth of a herd spiraling out of control. The Conservation Congress continued its long-term tradition of resisting higher antlerless deer harvest levels but directed their attention to questioning the accuracy of the Sex-Age-Kill (SAK) methodology used for estimating deer populations.

In response to constant challenges about the accuracy of the SAK method, Dr. Lloyd Keith of the University of Wisconsin-Madison and (then) graduate student Bill Ishmael designed a helicopter survey for Deer Management Unit 70A to actually count 1984 season survivors and verify the accuracy of the SAK. Tom Hauge, then wildlife manager at Spring Green, took part in the survey as a counter in the helicopter. Not only did the count confirm the SAK's accuracy, it indicated the SAK might have a tendency to *underestimate* the deer population.

The 1985 gun deer season was successful, but the DNR had to work at it. The harvest was predicted in excess of 280,000, but bad weather including snow, sleet, and rain reduced the harvest well below expectations. As a result, the season was extended nine days in 21 deer management units for the first time in history. Hunters killed about 4,000 more deer, bringing the state gun harvest total to 274,302. Archers tallied another 40,744 deer.

Deer populations continued to be healthy throughout the 1980s, albeit exceeding the established over-winter goal of 700,000. The deer harvest standard early in the decade exceeded 135,000, but mild winters and conservative antlerless deer quotas bumped the annual gun take up above 250,000 and the archery take above 40,000 consecutively from 1985 until 1989. The harvest in the 1989 season set state records for gun (310,192) and bow (46,394). More than 870,000 deer hunting licenses were sold during that record year.

A formal review of deer population goals was conducted with the Conservation Congress in 1986. At this time, many east central and southern management units' over-winter deer population densities were adjusted from 30 to 35 deer per square mile of range over the strong objections of deer biologists. This change had a very important bearing on future herd management problems including crop damage, automobile accidents, and disease.

The continued deliberate management of the deer herd above over-winter goals coupled with the ill-advised increase of those goals in east central and southern Wisconsin by the Conservation Congress and supportive deer hunters was clearly responsible for compounding the deer management dilemma. It set the stage for a deer population irruption because just a minor under-harvest could produce a major deer herd increase. And that is exactly what happened.

SAK Challenges

In 1989, the Wisconsin Chippewa bands reached an agreement with the state of Wisconsin on the manner in which they would cooperate in deer management in the ceded territories. Based upon a thorough review of the DNR's procedures for



T. SHEFFY

The Gamekeepers

monitoring the deer herd (SAK system), setting population goals, and prescribing the antlerless harvest levels, tribal biologists recommended following DNR's procedures and methodology.

The *Great Lakes Indian Fish and Wildlife Commission (GLIFWC)*, including the Voigt Intertribal Task Force (a committee within GLIFWC named after DNR's former secretary), endorsed the tribal biologists' recommendations. The results were embedded in the 1990 federal court stipulations documenting endorsement of the Wisconsin DNR's procedures. Hunting, trapping, and fishing season procedures were also codified in the Wisconsin Administrative Code (official state rules) as permanent regulations.

In the spring of 1991, weary of Conservation Congress complaints, the Natural Resources Board appointed a 12-member ad hoc committee to study the deer management system and make recommendations to the board. Dr. Scott Craven of the University of Wisconsin-Madison chaired the committee, which included representatives of county government, bowhunters, sports clubs, tourism, news media, farmers, and the Conservation Congress. After numerous meetings including public listening sessions, the committee presented a report of issues and recommendations to the Natural Resources Board in September 1991. Most important for the department, the report endorsed the SAK method for measuring the size of the deer population. Twenty-three recommendations were made to improve Wisconsin's deer management system. Major changes included the following:

1. Endorsement of a computerized licensing system and uniform—March license expiration date implemented in 1992
2. Creation of an antlerless harvest system revolving around Hunter's Choice and bonus tags
3. More aggressive use of increased quotas and bonus tags
4. A 16-day deer season in northern forest management units
5. An antlerless harvest strategy for northern units using the following options if needed:
 - Early antlerless-only hunt (prior to traditional opening)
 - Antlerless-only first (some rules *must* be implemented to make all hunters shoot antlerless deer first)
 - Antlerless-only during 9- or 16-day season
 - Reverse Hunter's Choice (change basic license authority from buck to antlerless and the basic Hunter's Choice authority from any deer to buck)

Continuing Seasons

The 1991 fall deer season started a trend of record deer harvests that no one could have predicted. Despite an opening weekend blizzard, gun hunters killed an unbelievable 352,520 deer by season's end. Archers tallied 67,097 more deer, and the Chippewa deer harvest added another 4,939. Hunters were giddy with success, and gun deer license sales set a new record of 674,422. Biologists recorded lower yearling percentages for the second consecutive year and were puzzled about the cause.

While the 1991 deer season results made a lot of hunters happy, the danger signs of trouble ahead were very apparent. Prior to the season, the deer herd was estimated at 1.35 million. Deer damage to agricultural crops was still a problem, with 396 complaints resulting in 3,968 more deer being killed. About half (61) of all deer management units were above the established over-winter goal. Almost 170,000 bonus deer permits were offered for sale because there weren't enough Hunter's Choice applicants. About 50,000 remained unclaimed at season's end.

Even more disturbing to the DNR, members of the Conservation Congress were still saying, "We don't believe your numbers!" Wildlife managers and research biologists were dumbfounded by this opinion after their methodology had withstood past legislative audits, Chippewa Tribal reviews, federal court scrutiny, and the 1991 ad hoc study endorsed by Conservation Congress participants. (Another audit by the Legislative Audit Bureau would soon follow.)

Black Bear Management

Researcher Bruce Kohn was widely respected by bear hunters and the Conservation Congress. The population modeling he had completed was a little too complicated for them to grasp in detail, but they were beginning to understand that unrestricted harvest was starting to have a negative impact on the bear population. Relaxing a bit with the reduced 1983 harvest of 934 bears, concern was back on the agenda when the 1984 bear kill reached 1,130.

Once again, the DNR sought legislation to establish the authority to control the harvest. This time, they had the support of the major hunting organizations including the Wisconsin Bear Hunters Association, Conservation Congress, Wisconsin Bowhunters, and the Wisconsin Wildlife Federation. The proposed bear hunting legislation passed the Assembly but was amended in the Senate. A legislative compromise committee was formed, and the resultant new bill appeared to have the support of both houses of the Wisconsin State Legislature. However, longtime bear hunter and Conservation Congress vice-chair Hank Liebrecht got on the telephone to key legislators and convinced them to pass a motion calling for reconsideration of the proposed legislation.

This turn of events left little option for the DNR. The data clearly showed that another year of unrestricted bear harvest would be harmful to the population. As a result, Miller recommended and the Natural Resources Board approved closing the 1985 bear season. Simultaneously, the DNR staff embarked on another campaign to educate hunters on the need to have control of bear hunter participation.

The season closure sent a strong signal to everyone that the DNR was very serious about protecting the state's black bear population. The following year, the Conservation Congress including Hank Liebrecht supported the establishment of a permit system for bear hunter participation and bear harvest quotas. The new law was passed, and the season was reopened in 1986.

Miller had a long talk with Liebrecht about his rationale for opposing the earlier bear hunting legislation. He was intrigued about why Liebrecht would do such a thing after being so closely involved with drafting DNR's proposed regulations. Liebrecht, widely known for his tough-minded, stubborn views on certain subjects, revealed that it came down to his love-hate relationship with the DNR and being fearful that the department was being given too much authority in the proposed legislation. As for the bear season closure, when Miller inquired about Liebrecht's reaction to that, he replied, "It didn't hurt the bears, did it?"

While the 1986 bear harvest was only 503, the next six years of bear seasons exceeded 1,000 each year, and the relatively stable kill allowed the population to increase. Students at the University of Wisconsin-Stevens Point under Dr. Raymond Anderson monitored the population throughout this period to verify the population remained at healthy levels.



The Gamekeepers

Wildlife manager Mike Gappa added a wealth of knowledge to the bear database for Clark County and central Wisconsin in the 1980s. Gappa's individual research led to new findings about the bear population expansion in this part of the state. His active participation on the Conservation Congress Bear Committee was instrumental in creating a new level of hunter confidence in the DNR's credibility in bear management activities.

In the private sector, Maggie Heino was building a reputation for her bear studies as well. She shared her data with the DNR and Bruce Kohn and contributed valuable information for updating the population model.

Wisconsin's first bear hunting pamphlet was published in 1991. Black bear were no longer looked at as a nuisance animal or something to be shot while deer hunting. Bruce Kohn, Mike Gappa, the Wisconsin Conservation Congress, Maggie Heino, and the Wisconsin Bear Hunters Association had established the bear as a highly respected trophy game animal in the state.

Elk Management

The last time the department experimented with elk was in 1917, when 40 elk from Yellowstone National Park were shipped to Wisconsin and held in a 300-acre enclosure at the Trout Lake Game Farm located just north of Minocqua. In 1931, most survivors were shipped off to zoos or given to private individuals. About 15 of them were set free and caused trouble eating farmer's hay, tearing up gardens, and running through fences until 1948 when the last one was thought to have been shot during the deer season.

DNR biologists did not like the risks involved with elk reintroductions. Disease potential for deer, agricultural crop damage, fence destruction, and limited range were all factors in producing serious reservations about embarking in such a project in the 1980s. Keen citizen interest, however, led to legislation in 1989 that forced the DNR staff to study the prospect of introducing moose, caribou, and elk in Wisconsin.

The assessment completed by DNR researchers and wildlife managers in 1990 concluded that elk taken from the wild had the best chance for success to thrive in the state. The Bayfield Peninsula was identified as the best range for a release, but a management plan to do so was strongly rejected by farmers, snowmobilers, and deer hunters in 1991. Steve Miller and the research staff recommended plan abandonment and the Natural Resources Board agreed.

A group of wildlife biologists along with Dr. Ray Anderson of the University of Wisconsin-Stevens Point, area citizens, and some other elk proponents formed an organization called the Wisconsin Elk Study Committee to pursue alternative elk introduction strategies. DNR biologists including Tom Hauge, Bill Mytton, and Keith McCaffery worked with the new elk committee to ensure that planning strategies were consistent with agency policies and that deer health concerns received priority attention.

The biologists soon identified a remote area in the Chequamegon National Forest near Clam Lake as a potential release site. They studied the area in more detail over several months and initiated an intensive public information effort to sell the idea and build area support for accommodating the state's first wild elk herd since elk had been extirpated from the state more than 100 years ago.

Canada Goose Management

As bureau director, Steve Miller represented Wisconsin on the Mississippi Flyway Council. John Wetzel and researcher Dick Hunt served on the Flyway Council's Technical Section. Jon Bergquist replaced Wetzel when he left the bureau, and Bill Wheeler replaced Hunt when Hunt retired.

In the beginning, Miller found that extreme friction existed with the southern and mid-latitude states because Wisconsin had been greatly exceeding its annual kill quotas for Canada geese. His first priority was to revise the federal plan guiding the management of the Mississippi Valley Population (MVP) of Canada geese for Wisconsin and the Mississippi Flyway.



Dick Hunt (left) and Bill Wheeler (right) served on the Mississippi Flyway Council's Technical Section.

Miller and Wetzel, with help from researcher Dick Hunt and Dr. Donald Rusch from the University of Wisconsin Coop Unit, examined Wisconsin's goose plan and set up strategies for working with key members of the public in early 1986. Next, Miller and Wetzel approached Mississippi Flyway Council members in an attempt to find support for revising the entire MVP process for setting state-by-state goose harvest quotas. They soon had a block of votes composed of members from Illinois, Michigan, and Kentucky willing to change the management philosophy to "those who have the most geese should have the most say in decision making."

Illinois participants had long wanted Wisconsin to be more parochial about geese and less concerned about the idea of redistributing geese further south in the Mississippi Flyway. They were elated over Miller's strategy and eager to join in the new effort. Since Illinois and Wisconsin often accounted for about 75% of the MVP Canada goose harvest in the Flyway, by working together they were able to make substantial changes to the management plan.

As an interesting aside, the Illinois Wildlife Management director at the time was T. Miller (no relation to Steve Miller). As the new changes in Mississippi Flyway goose management policy were occurring, Flyway Council members used to joke about being out-manuevered by the "Miller Brothers." While both men were jovial about their shared last name, they were very serious about their common management objectives.

While the other Mississippi Flyway states were expressing concern over Wisconsin's relatively high Canada goose harvest, Wisconsin goose hunters were complaining about short seasons and limited harvest opportunities. In 1987, Miller and Wetzel assembled a group of the best goose management minds in Wisconsin along with the major goose hunting organizations and individuals active in the state. Their goal was to revise the current *goose management zones* and related hunting regulations to prevent exceeding harvest quotas. The meetings were very productive and so efficient that the work was completed after only three meetings. The core recommendations of the citizen goose committee were as follows:

- Restricting the goose hunter to one of five management zones (Horicon, Pine Island, Theresa, Collins, and Exterior)
- Establishing a monitoring system capable of closing the hunting season when the annual harvest quota was achieved
- Controlling the harvest in the Horicon, Pine Island, Theresa, and Collins zones with the permit and tag system

The proposed system was endorsed by the Mississippi Flyway Council and the U.S. Fish and Wildlife Service and implemented in 1988. The Canada goose harvest quota for Wisconsin was 63,700, and 61,000 individuals received permits and tags. Other rules included the following:

- Hunters were restricted to one of the five hunting zones (about half of hunters [32,500] selected the Horicon Zone).
- Hunters selecting Horicon, Pine Island, or Collins zones had to choose one of three or four hunting periods.
- A self-addressed, stamped post card (supplied to the hunter) had to be mailed within 48 hours of the kill in all zones except the Theresa Zone (Exterior Zone hunters received five cards initially but could obtain more from the DNR if necessary).
- In the Theresa Zone, Canada geese had to be registered on the day of kill.

The new framework drew some hunter objections. However, Miller had strong support from the citizen group that helped design the regulations, including Bill Murphy. That support helped Miller convince the Conservation Congress and state waterfowl hunting organizations that the only way future goose quota increases could be increased was to support the new framework.

As the 1989 MVP Canada goose population approached record levels, 78,000 Wisconsin hunters obtained goose hunting permits and tags, with Horicon Zone

Goose management zones

legally defined geographic areas with management or population goals. Wisconsin initially established special restrictions for hunting near the Horicon National Wildlife Refuge in the 1960s and gradually extended various rules for goose hunting in the Horicon area. In the 1970s, special hunting seasons and rules were established for defined goose hunting zones (East Central, Burnett County, Brown County, New Auburn, and Rock Prairie). The Exterior, Collins, Theresa, and Pine Island zones were added as goose use intensified in the 1980s.



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continuing to attract about half of the participants. The same basic rules were in place, and Wisconsin's compliance to the assigned harvest quota was on target.

In 1990, a record of 93,072 hunters received Canada goose permits and tags to hunt in one of five zones. The goose harvest ballooned to 120,000 for the 1990 season, the most ever for Wisconsin, and proved the value of the new harvest control system. The following season brought additional success, goose damage claims were declining, and controversy faded from the goose management agenda.

A new experimental September early goose hunting season was successfully tried in southeast counties in 1990 to control the rising goose damage trend. During this special seven-day season, an estimated 1,600 geese were killed. Additionally, over 2,160 Canada geese were trapped and transported from Green Bay and other metropolitan areas to other Wisconsin sites to expand resident giant Canada goose populations.

In 1991, Miller addressed a national goose symposium to explain the Wisconsin program and changes in the MVP management system. He described the long history of controversy by categorizing the 1960s as "Goose Wars I," the 1970s as "Goose Wars II," and the 1980s as "Goose Wars III" to demonstrate how contentious the goose management issue had been. The new system not only ended the long history of problems but also would continue to be successful long after Miller left the program.

That fall, Canada goose hunters receiving permits and tags increased to 94,880, with 53% selecting the Horicon Zone. The estimated Canada goose harvest topped 134,000, well under the state's assigned quota of 185,600 geese. Fewer hunters participated in the early September goose season (4,772) because of the difficulties of finding a place to hunt in southeastern Wisconsin. Only about 700 geese were killed during the special season.

Duck Management

The point system was now well accepted for determining bag limits, steel shot problems were no longer a concern, and Wisconsin hunters enjoyed steady 45-day seasons with the 100-point bag limits allowing daily bag limits to average five birds a day. However, U.S. Fish and Wildlife Service (FWS) duck breeding surveys in the 1980s were showing population declines. By 1988, spring drought gripped the prairies of Canada and the United States. The FWS responded by reducing the duck hunting season to 30 days, dropping the point system for bag limits, and restricting the daily bag limit to three ducks along with specific species limits as well. States in the northern latitudes were required to open their seasons one week later. Southern states had earlier closing mandates.

Although duck hunters nationwide were aware that duck numbers were down substantially, considerable debate ensued over the severity of the federal restrictions. This debate carried over into the various flyway councils and technical sections with some southern states pushing for more liberal seasons. The contentious discussions continued into the 1990s along with drought and restrictive seasons.



PHOTOS: B. BAKON

About this time, the FWS began to discuss a new system of establishing seasons and bag limits with the Mississippi Flyway Council. An innovative system called “adaptive harvest management” would soon be used as a standard practice each year, using mid-continental mallard population counts and Canadian prairie wetland inventories to prescribe optimal duck season frameworks.

The Wisconsin 1990 duck season harvest was estimated at about 259,000 birds, a harvest level some 40% below those of the 1970s. Increased wetland drainage for agriculture was continuing as well and was having long-term negative impact on waterfowl production in all of the Canadian provinces. Considerable Flyway Council discussion focused on whether or not the duck harvest was *additive* or *compensatory mortality*.

Canvasback and redhead duck populations continued on a long-term decline in direct proportion to habitat losses and environmental pollution of Chesapeake Bay, a major wintering area. After allowing one canvasback to be taken in the bag in 1985, the season was closed through 1993. The daily bag limit on redheads remained one throughout the 1980s and into the next decade.

The 1985 Farm Bill with its swamp buster provisions (prohibiting large wetland drainage) and the Conservation Reserve Program were beginning to have a positive impact for ground nesting wildlife. The renewed 1990 Farm Bill added even more acreage for wildlife. Most importantly, Wisconsin led the national effort in establishing a new “Joint Venture” in 1990 under the North American Waterfowl Management Plan along with six other states to accelerate efforts to increase waterfowl habitat. This new vision laid out an aggressive plan to produce duck numbers at the levels seen in the 1970s.

The Ducks Unlimited organization established its first formal wetland project in Wisconsin on February 10, 1987. Ducks Unlimited allocated \$76,000 to improve nesting, feeding, and resting habitat on 60 acres located in the Tichigan Wildlife Area (Racine County). The project was part of a multi-million dollar effort focused on the Mississippi Flyway. More Ducks Unlimited funds would follow for Wisconsin in subsequent years.

Although continental duck numbers had been declining, Wisconsin’s own breeding duck surveys demonstrated an increase between 1985 and 1992. Total breeding ducks for the state ranged from 257,000 in 1985 to 453,000 in 1991. The state’s most important breeder, the mallard, showed numbers ranging from a low of 76,000 in 1985 to a high of 219,000 in 1989.

Ducks and other wetland wildlife benefited when Steve Miller utilized the talents of veteran researcher and DNR administrator Jim March to draft a wetland and grassland habitat management plan for Wisconsin. The project identified the best locations in the state for restoration and habitat management opportunities. The plan was completed in 1990 and was used to focus the growing amount of state, federal, and private (i.e., Ducks Unlimited, Wings Over Wisconsin, Pheasants Forever, and Wisconsin Waterfowl Association) funding aimed at state habitat improvement efforts.

Additive mortality

An increase in overall mortality from hunting in addition to other causes.

Compensatory mortality

A situation in which mortality from hunting is compensated for by an increase in animals surviving after the hunting season.



LEFT: J. LEVARD, RIGHT: B. BACON

The Gamekeepers

Wild Turkey Management

By now, the rapid expansion of the wild turkey population was widely known as one of the biggest wildlife success stories in the country. From its meager beginning of 334 birds in Vernon County, 52 counties would boast wild turkey population of over 130,000 by the end of 1992.

Spring and fall hunting success reflected the increasing turkey population and the receptive attitudes of landowners and hunters alike. While the early, very conservative seasons seemed unnecessary to some, the light hunter densities, high quality hunting, and favorable landowner impressions of hunter conduct turned out to be essential ingredients to overall program success.

Spring turkey hunting expanded from five hunting zones in 1984 to 39 hunting zones and 11 state parks by 1992. The spring harvest increased correspondingly with the size of the hunting area. The 1983 harvest was just 182 turkeys by 1,200 permittees but increased to 8,798 turkeys by 43,925 permittees in 1992. The first fall turkey harvest in 1989 was 1,570 and increased to 5,024 in 1992.

The turkey hunter education clinics continued to be offered each year by volunteer instructors provided by the Wisconsin Chapter of the National Wild Turkey Federation. The handbook used for these sessions had been revised and improved as new information became available. Just prior to Ron Nicklaus leaving state employment to work for Ducks Unlimited in 1987, the program coordination returned to the bureau in Madison under Ed Frank.

The wild turkey program created an entire new hunting subculture and recreational opportunities in the state. It surpassed even the most optimistic projections of its originators.

Pheasant Management

The completion of pheasant research on the Waterloo Wildlife Area in 1974 ended major field research efforts in Wisconsin for some time. However, the dense nesting cover principle of that study as well as reinforcement from federal waterfowl studies led to the application of plantings statewide. Dense nesting cover in large, undisturbed blocks continues to be a best management practice today.

The 1985 and 1990 Farm Bills with their Cropland Reserve Program provided over 250,000 acres to the permanent nesting cover base and undoubtedly was a major factor in pheasant production and survival. At the end of 1991, the pheasant population was at an eight-year high.

The wild pheasant release program was expanded by dedicating a larger share of the Poynette Game Farm for raising wild stock obtained from the state of Iowa and Manchurian ring-necked pheasant eggs direct from the Jilin Province of China. Cooperation from MacFarlane's Game Farm (near Janesville, Wisconsin) and Wings Over Wisconsin facilitated the China project.

Volunteer instructors lead wild turkey hunting clinics (left), fostering a new hunting subculture.

Although field work on pheasants (right) concluded in the 1970s, research supported planting dense nesting cover.



LEFT: J. ROBAIDEK, CENTER: N. GILL, RIGHT: DNR FILE

The wild pheasant population augmented by the release of the Jilin Province progeny in 1988 survived at moderate levels. Private sports clubs like Pheasants Forever and Wings Over Wisconsin, as well as funds from pheasant stamp sales, contributed to an enhanced habitat base. In the late 1980s, St. Croix and Green counties were added to the Iowa-strain releases already made in Dane, Rock, and Iowa counties. Jilin progeny were released in Fond du Lac, Dunn, Dane, Green Lake, and Sauk counties.

Dove Hunting

The dove hunting subject surfaced again in February 1986 when the *Wisconsin Sportsman* magazine polled its readership on the question, "Should Wisconsin have a dove season?" Surprisingly, 68% of the respondents were supportive. Later in the year, the DNR and the Legislature received a fact sheet promoting dove hunting by an organization called Wisconsin Hunters Organized to Hunt Doves.

The dove hunting subject dropped from public discussion for a few years, but John Keener brought it up again. Although he had retired from the DNR, he had not lost his enthusiasm for hunting mourning doves. On April 27, 1989, he appeared at the monthly Natural Resources Board meeting and presented a petition bearing 2,488 signatures endorsing the creation of a mourning dove hunting season in the state.

Keener's petition-circulating activities generated publicity but not the kind he had wanted. John Barnes, a local veterinarian and longtime opponent of all hunting in Wisconsin, also appeared at the April board meeting. He presented a petition of his own circulated by the Alliance for Animals national anti-hunting organization that had 4,767 signatures opposing dove hunting. The Natural Resources Board accepted both petitions. Following a brief discussion, they voted on a motion to reject the mourning dove hunting proposal. The motion passed.

Muskrat Management

The share-trapping program at Horicon Marsh was still in operation and remained effective. Muskrat fur prices were high, ranging from \$2 to \$6 per pelt, but the muskrat population was at low levels throughout this time period. Twenty trapping units attracted 17 to 23 trappers with a harvest ranging from 1,500 to 3,500 muskrats per year. Total income since its 1943 inception exceeded \$1.5 million for the state's Conservation Fund by 1985.

Regulations

The regulations process was a time-consuming activity that was bewildering to the public but critical to the success of the wildlife management and law enforcement programs. Over the years, a concerted effort was made by the DNR staff to educate everyone participating in hunting, trapping, and fishing activities about rule-making procedures and the meaning of basic regulations.

A fact sheet on the rules process developed by the author in 1978 was broadly circulated and kept current. Efforts to educate DNR employees, the public, and the Conservation Congress not only improved their understanding of the process but improved attitudes and meaningful participation in rulemaking. During my tenure as rules drafter, regulation pamphlets were redesigned for easier reading and highlighted new or important rules.

Public complaint about too many rules and statements like "you need to be a lawyer to understand today's complex hunting and fishing rules" had been expressed by the public since the turn of the century. In response, periodic regulation simplification committees were formed, usually involving conservation wardens, fish managers, and wildlife managers who would screen hundreds of state statutes and administrative rules for potential simplification or elimination.

While a few unnecessary or outdated rules were eliminated by the DNR every four or five years, annual Conservation Congress meetings often had 50 or more resolutions for additional rules. It seemed incongruous that the very group critical of complicated regulations would attempt to generate so many new rules of their own. The user was its own worst enemy.

Health Advisories

Lyme disease caused by a bacterium found in deer ticks (*Ixodes dammini*) was first detected in Wisconsin in 1979. Field tests in 1981 confirmed the infestation in virtually all counties of the state. Throughout the 1980s, the DNR disseminated special brochures, fact sheets, and news releases to alert people about the disease, what to do to avoid ticks, and how to properly remove them when they become attached. An increasing number of untreated cases of Lyme disease were recorded over this time period with individuals suffering from arthritis, malaise, and fatigue after initial bouts with chills, fever, headache, stiff neck, myalgia, sore throat, nausea, and vomiting.

Wisconsin received its first health advisory affecting duck hunting in 1989. Industrial chemicals called PCB's (polychlorinated biphenyls)—widely used in earlier years but banned in 1976 because they are known carcinogens—were detected in tissue samples taken from ducks in the lower Fox River, Sheboygan Harbor, parts of the Milwaukee River, and Milwaukee Harbor. This resulted in the DNR issuing a warning to duck hunters not to eat certain species (mallards and scaup) taken from those special areas or at least to remove the skin and fatty tissue from them before cooking.

The Gamekeepers

Key to drafting good rules and accurate regulation pamphlets was continuing the warden review process that had been initiated in the 1970s. Throughout the 1980s, draft administrative rules and regulation pamphlets were mailed to every conservation warden in the state along with the schedule for finalizing and publishing the material. That way, the very people responsible for enforcing the regulations had early notice of what was coming as well as an opportunity to correct any oversights. Very few errors occurred under this system, but when it did happen, it was usually dramatized because the error was part of more than one million regulations pamphlets distributed each fall.

Director Miller was also very committed to obtaining sound public input throughout the waterfowl regulatory process. Because the federal framework came out so late in the year and the DNR had to use an emergency rules process to get the rules in place by the early October duck season, the DNR had always had difficulty explaining the selected season to the public. The Conservation Congress Waterfowl Committee had some input, but the rapidity of rule making was confusing to them also, and controversy resulted.

Miller worked on the public input process with the staff and key organizations and came up with a new system that enabled input before the federal framework came out, during the review process, and late at the decision-making end of the process. The new system also presented basic information about the rule-making process to ensure people knew how it worked. The combination of activities and resultant acceptance by the public virtually eliminated past complaints.

While the first steel shot zone had been established in Wisconsin in 1977, the zone was defined as a "nontoxic shot zone" in 1981 in anticipation that other legal materials would later be authorized for use in shotshells. A series of additional changes followed:

- Steel shot in size T was legalized in 1985.
- Juneau County was added to the nontoxic zone in 1986.
- Copper- and nickel-coated steel shot not exceeding .0002 inches or 1% or less of shot by weight was legalized in 1987.
- Steel shot was required for hunting ducks, geese, brant, coot, and gallinules statewide in 1987.
- Steel shot was also required when used in muzzleloaders in 1989.
- Nontoxic shot became mandatory for all waterfowl hunting in the United States in 1991.
- Bear hunting was closed in 1985. Fisher trapping was allowed for the first time; permits were required. Mandatory hunter education was required of new hunters licensed after January 1, 1985.
- Bear hunting was reopened in 1986 using permits for the first time, and hunting was only allowed in certain areas in the north.



LEFT: DNR FILE, CENTER AND RIGHT: B KOHN

- Bonus deer tags were issued for the first time in 1986, allowing hunters to kill one additional antlerless deer.
- Certain caliber handguns were legalized for deer hunting in 1988.
- The 1988 pheasant hunt was closed in portions of Dane, Rock, and Iowa counties to protect the release of the new strain of pheasants obtained from the Jilin Province of China.
- Fall turkey hunting was allowed for the first time in 1989. Three seven-day hunting periods were opened by permit only.
- Hunting Canada geese outside of special goose hunting zones required a special permit in 1990.
- A special deer hunting season was authorized for disabled persons on August 1, 1990.
- Canada goose hunting in southeast counties was opened in September 1990 to control rapidly spreading urban goose population.
- “Metro” (urban) deer hunting seasons started in 1992.

Miller Promotion

Steve Miller was promoted to become the assistant Resource Management Division administrator under James Addis in 1992 and succeeded Addis as division administrator in 1997. Throughout the decade and beyond, Miller kept a heavy hand in programs impacting wildlife management. His contributions included the following highlights:

- Promoting the Future of Hunting program
- Leading the alternative funding report to the Legislature
- Spearheading whooping crane restoration
- Establishing partnerships that enabled the Wisconsin Bird Conservation Initiative to form
- Proposing the *Land Legacy Report* strategy
- Coordinating Wisconsin’s initial chronic wasting disease strategies

Miller wrestled often with future planning and direction obstacles, seemingly always preparing for the next transition. He was aware that the economy and other national priorities would always subsume conservation efforts, and he developed a real concern over the question: “Is wildlife management going to be relevant to society?” As Miller observed, “The agency has good people, good leadership, and a good constituency. Likely hunting and fishing will always be relevant, but more people should have an intimate relationship with wildlife. It should always be part of the human experience.”

